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<p style="text-align: right;">Page 1386</p> <p>1 STATE OF LOUISIANA 2 DIVISION OF ADMINISTRATIVE LAW 3 ***** 4 DEPARTMENT OF NATURAL 5 RESOURCES 6 NO. 2022-6003-DNR-OOC 7 IN THE MATTER OF 8 HENNING MANAGEMENT, LLC 9 V. CHEVRON U.S.A., INC. 10 ***** 11 PUBLIC HEARING 12 BEFORE THE HONORABLE CHARLES PERRAULT 13 14 Taken on Monday, February 13, 2023 15 DAY 6 16 (pages 1386 through 1643) 17 Held at the DIVISION OF ADMINISTRATIVE LAW 18 COURTROOM 1 19 1020 Florida Street 20 Baton Rouge, Louisiana 21 22 REPORTED BY: DIXIE B. VAUGHAN, CCR 23 ***** 24 JUST LEGAL 25 9618 Jefferson Highway, Suite D-386 Baton Rouge, Louisiana NEW ORLEANS * BATON ROUGE * LAFAYETTE LAKE CHARLES * HOUSTON (225) 291-6595 (855) 900-5878 www.just-legal.net setdepo@just-legal.net</p>	<p style="text-align: right;">Page 1388</p> <p>1 EXHIBITS OFFERED, FILED AND INTRODUCED: 2 PLAINTIFFS' EXHIBITS: 3 PAGE 4 EXHIBIT ZZZZ Greg Miller Slide Show 1598 5 EXHIBIT AAAAA Angela Levert Slide Show 1599 6 EXHIBIT BBBB David Angle PowerPoint 1599 7 EXHIBIT CCCCC Patrick Ritchie Documents 1599 8 EXHIBIT DDDDD John Frazier Documents 1599 9 EXHIBIT EEEEE John Kind Documents 1600 10 EXHIBIT FFFFF Helen Connelly Documents 1600 11 DEFENSE EXHIBITS: 12 EXHIBIT 59 USGS professional paper 1494 on barium sulfate 13 14 EXHIBIT 60 Management of 1511 recreational and farm ponds in Louisiana 15 16 EXHIBIT 62 Louisiana Crawfish 1503 Production manual 17 EXHIBIT 73 Community Right-to-Know 1492 18 EXHIBIT 75 RECAP frequently asked 1452 questions document 19 20 EXHIBIT 158.4 Slide deck that was used 1586 during Mr. Angle's rebuttal testimony 21 22 EXHIBIT 158.6 Document about cattle 1500 23 24 EXHIBIT 158.7 ITRC soil background and 1473 risk assessment document 25</p>
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<p>1 EXHIBITS (Continued): 2 EXHIBIT 163.5 Closing Slide Deck, 1612 excluding pages 4 and 10 3 4 EXHIBIT 167 Mr. Holloway's report in 1573 the Louisiana Wetlands litigation 5 6 * * * 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25</p>	<p>1 APPEARANCES (Continued): 2 REPRESENTING CHEVRON U.S.A. INC., ET AL.: 3 JOHNNY CARTER, ESQUIRE 4 Phone: (713) 651-9366 SUSMAN GODFREY 5 1000 Louisiana Suite 5100 6 Houston, TX 77002-5096 7 - AND - 8 TRACIE RENFROE, ESQUIRE MITCHELL BRYANT, ESQUIRE 9 Email: trenfroe@kslaw.com mbryant@kslaw.com 10 Phone: (225) 389-3770 KING & SPALDING LLP 11 1100 Louisiana, Suite 4100 Houston, TX 77002 12 13 PANELISTS: 14 STEPHEN OLIVIER 15 JESSICA LITTLETON 16 GAVIN BROUSSARD 17 CHRISTOPHER DELMAR 18 19 20 21 22 23 24 25</p>
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<p>1 APPEARANCES: 2 REPRESENTING HENNING MANAGEMENT, LLC: 3 TODD WIMBERLEY, ESQUIRE JOHN CARMOUCHE, ESQUIRE (VIA ZOOM) 4 Email: Twimberley@tcmlawfirm.com JCarmouche@tcmlawfirm.com 5 Phone: (225)400-9991 TALBOT, CARMOUCHE & MARCELLO 6 17405 Perkins Road Baton Rouge, Louisiana 70810 7 8 - AND - 9 MATT KEATING, ESQUIRE 9 Email: Mkeating@mbklaw.net Phone: (337) 562-2327 10 MUDD BRUCHHAUS & KEATING, LLC 422 E. College Street, Suite B 11 Lake Charles, Louisiana 70605 12 13 REPRESENTING CHEVRON U.S.A. INC., ET AL.: 14 L. VICTOR GREGOIRE, ESQUIRE Email: victor.gregoire@keanmiller.com 15 Phone: (225)387-0999 KEAN MILLER, LLP 16 400 Convention Street, Suite 700 Baton Rouge, Louisiana 70802 17 18 - AND - 19 LOUIS M. GROSSMAN, ESQUIRE 19 Email: louis.grossman@keanmiller.com Phone: (504)585-3050 20 KEAN MILLER, LLP First Bank and Trust Tower 21 909 Poydras Street, Suite 3600 New Orleans, Louisiana 70112 22 23 24 25</p>	<p>1 (PROCEEDINGS COMMENCING AT 9:10 A.M.) 2 JUDGE PERRAULT: We're on the record. 3 Today's date is February 13, 2023. It's now 4 9 o'clock. 5 I'm Charles Perrault, administrative law 6 judge. I'm conducting a hearing for a case 7 for the Department of Natural Resources, 8 Office of Conservation. We're at the office 9 of the Division of Administrative Law in 10 Baton Rouge. 11 The case before me is Docket Number 12 2022-6003, in the matter of Henning 13 Management LLC versus Chevron USA 14 Incorporated. 15 I believe this is our sixth day of the 16 hearing. I'd like the parties present to 17 make their appearance on the record. We'll 18 start with Chevron. 19 MR. GROSSMAN: Good morning, Your Honor, 20 panel members. Louis Grossman for Chevron. 21 MS. RENFROE: Good morning, Your Honor. 22 Panel members, good morning. Tracie Renfroe 23 for Chevron as well. 24 MR. GREGOIRE: Good morning, all. Victor 25 Gregoire for Chevron USA.</p>

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<p>1 MR. CARTER: Johnny Carter for Chevron. 2 JUDGE PERRAULT: All right. And for Henning. 3 MR. WIMBERLEY: Good morning. Todd Wimberley 4 for the plaintiffs. 5 MR. KEATING: Good morning, everybody. Matt 6 Keating for Henning Management. 7 MR. CARMOUCHE: Good morning. John Carmouche 8 for Henning. 9 JUDGE PERRAULT: All right. And I'd like the 10 panel members to make their appearance on the 11 record. 12 PANELIST LITTLETON: Jessica Littleton, 13 Department of Natural Resources, Office of 14 Conservation. 15 PANELIST DELMAR: Christopher Delmar, 16 Department of Natural Resources, Office of 17 Conservation. 18 PANELIST OLIVIER: Stephen Olivier, 19 Department of Natural Resources, Office of 20 Conservation. 21 PANELIST BROUSSARD: Gavin Broussard, 22 Department of Natural Resources, Office of 23 Conservation. 24 JUDGE PERRAULT: We're ready for Chevron to 25 present its rebuttal, and I'll ask counsel to</p>	<p>1 as Mr. Grossman will represent to the Court 2 that all of the slides contained in the slide 3 decks were shown in the courtroom and no 4 slides that are contained in the decks were 5 not shown. 6 MR. GROSSMAN: That's correct, Your Honor. 7 JUDGE PERRAULT: All right. Everything was 8 used before? 9 MR. GROSSMAN: Yes. 10 MR. WIMBERLEY: No objection, Your Honor. 11 JUDGE PERRAULT: Because rebuttal is limited 12 under the regulation -- let me put the -- 13 just for the record. Let's see. 14 Louisiana Administrative Code Title 43, 15 Section 635 F limits -- states the limits on 16 the rebuttal. And we've all been through 17 that. 18 MR. GROSSMAN: Yes. And, Your Honor, just so 19 we're clear, these are from the case in 20 chief. 21 The next one is 162.2. And that is the 22 direct examination of Patrick Ritchie from 23 Chevron's case in chief. 24 JUDGE PERRAULT: All right. Any objections 25 to that?</p>
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<p>1 begin. 2 MR. GROSSMAN: Yes, Your Honor. We're going 3 to start with the Zoom testimony from 4 Dr. Kind. 5 Before we do, as I mentioned, we have 6 some, we'll call it housekeeping. We have 7 some exhibits that we'd like to offer, file, 8 and introduce that were from the 9 presentations last week. 10 JUDGE PERRAULT: All right. 11 MR. GROSSMAN: So beginning with 12 Exhibit 162.1, this is the presentation deck 13 for Mike Purdom. 14 JUDGE PERRAULT: What's the number, again? 15 MR. GROSSMAN: 162.1. 16 JUDGE PERRAULT: Okay. That's 17 Dr. Purdom's -- what would we call this? 18 MR. GROSSMAN: We call it his trial 19 presentation. 20 JUDGE PERRAULT: Presentation. All right. 21 And all of the exhibits in it have 22 already been admitted into evidence? 23 MR. GROSSMAN: That's correct, Your Honor. 24 JUDGE PERRAULT: All right. Any objection? 25 MR. WIMBERLEY: No, Your Honor, not as long</p>	<p>1 MR. WIMBERLEY: No, Your Honor. 2 MR. GROSSMAN: Following that, we have 3 Exhibit 162.3. And that is the presentation 4 used with the direct testimony of Dr. John 5 Frazier in connection with Chevron's case in 6 chief. 7 JUDGE PERRAULT: Any objection? 8 MR. WIMBERLEY: No, Your Honor, as long as 9 the same representations apply. 10 MR. GROSSMAN: Next one, we have 162.4, which 11 is the presentation used with the direct 12 examination of Dr. John Kind in Chevron's 13 case in chief. 14 JUDGE PERRAULT: Any objection? 15 MR. WIMBERLEY: No objection. Same 16 conditions. 17 JUDGE PERRAULT: Okay. 18 MR. GROSSMAN: Next, we have Exhibit 162.5, 19 which is the presentation slides used in 20 connection with the direct-examination of 21 Dr. Helen Connelly as part of Chevron's case 22 in chief. 23 JUDGE PERRAULT: Any objection? 24 MR. WIMBERLEY: No objection. Same 25 conditions.</p>

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<p>1 MR. GROSSMAN: Then we have Exhibit 2 Number 162.6. This is the presentation 3 slides used in connection with the direct 4 examination of Angela Levert in Chevron's 5 case in chief. 6 JUDGE PERRAULT: Any objection? 7 MR. WIMBERLEY: No objection. Same 8 conditions. 9 MR. GROSSMAN: And finally, we have 162.7, 10 which is the presentation slides used in 11 connection with the direct examination of 12 David Angle in Chevron's case in chief. 13 JUDGE PERRAULT: Any objection? 14 MR. WIMBERLEY: No objection under the same 15 conditions. 16 JUDGE PERRAULT: All those were admitted into 17 evidence. 18 MR. GROSSMAN: Your Honor, I'll approach with 19 the copies. 20 JUDGE PERRAULT: Please. Thank you very 21 much. 22 Please proceed. 23 MR. GROSSMAN: Yes. And we will start with 24 the presentation of Dr. John Kind in 25 rebuttal. And as we've done in the past, we</p>	<p>1 last week to listen to the testimony from 2 Dr. Schuhmann? 3 A. Yes, I did. 4 Q. And you heard Dr. Schuhmann's testimony 5 that -- I believe he said he was surprised by your 6 statement that pica was a rare and uncommon 7 occurrence? Do you remember hearing that? 8 A. I do, yes. 9 Q. Did you have a chance to look at some of 10 the literature that he relies upon for his 11 opinions about pica? 12 A. Yes, I did. 13 MR. GROSSMAN: Jonah, could you pull up the 14 slide show? 15 BY MR. GROSSMAN: 16 Q. Dr. Kind, can you see this first slide? 17 A. Yes. 18 Q. So this is one of the articles that 19 Dr. Schuhmann cited in his direct testimony; 20 correct? 21 A. That's correct, yes. 22 Q. And what can you tell us about this 23 particular citation? 24 A. Well, this is one of the citations that 25 Dr. Schuhmann used to portray pica as a common</p>
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<p>1 have slide presentations that I can share 2 with you and the panel. 3 JUDGE PERRAULT: Okay. Yes. 4 MR. GROSSMAN: And opposing counsel already 5 has a copy. 6 JUDGE PERRAULT: Are these new exhibits? 7 MR. GROSSMAN: Yeah, these are. We will mark 8 these as Exhibit 163.1. 9 JUDGE PERRAULT: Dr. Kind is participating by 10 Zoom. He has been sworn. 11 I guess I'll swear you in again. 12 DR. JOHN KIND, 13 having been first duly sworn, was examined and 14 testified as follows: 15 DIRECT EXAMINATION 16 BY MR. GROSSMAN: 17 Q. Good morning, Dr. Kind. How are you 18 today? 19 A. Good. Good morning. 20 MR. GROSSMAN: As a reminder to Your Honor 21 and the panel, Dr. Kind has already been 22 accepted as an expert in human health risk 23 assessment and toxicology. 24 BY MR. GROSSMAN: 25 Q. Dr. Kind, did you have the opportunity</p>	<p>1 event. And when you look at the title, that's 2 what you do conclude; however, this article and a 3 number of the others really look at all pica more 4 as a psychological disorder and did not focus 5 specifically on soil pica, which is the -- 6 obviously the event that we're interested in here. 7 Q. So let's break that down a little bit. 8 Pica is a broader category than soil 9 pica; correct? 10 A. That's correct. It's generally 11 considered the ingestion of nonnutritious items. 12 Q. And so when we talk about pica in its 13 broadest sense, it could include, as this table 14 notes, ashes, balloons, chalk, crayons, other 15 items like that; correct? 16 A. Yes. This is Table 1 from the Rose 17 article, and it lists a number of different items 18 in -- you know, in addition to clay and dirt, but 19 there are many, many other items that are involved 20 in pica behavior. 21 Q. Right. And a lot of them are non-dirt 22 items; correct? 23 A. The majority of them are, yes. 24 Q. Yeah. This is another article that -- 25 this is Slide 2, Dr. Kind, if you can't see it.</p>

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1 This is another article that
 2 Dr. Schuhmann relies upon, isn't it?
 3 A. Yes, this is another article that he
 4 presents supporting his statements that pica is a
 5 common occurrence.
 6 Q. And I believe, if I'm not mistaken, that
 7 this particular article was cited for the
 8 proposition that there's a prevalence or
 9 occurrence as high as 50 percent for pica.
 10 Do you remember that?
 11 A. I do remember him stating that, yes.
 12 Q. And what can you tell us about this
 13 article?
 14 A. Well, similar to the last article we
 15 looked at, this looks at pica from the
 16 psychological perspective, again this looks at all
 17 forms of pica, it's not limited, again, to soil
 18 pica.
 19 So here's Table 1 from this study and as
 20 you can see again, the majority of the items here
 21 have nothing to do with soil pica.
 22 Q. And it looks to me like a lot of these
 23 items -- chalk, paper, toothpaste -- those are all
 24 pretty commonly found?
 25 A. They are, yes.

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1 Q. So here's another one. This is the 1966
 2 article that I know Dr. Schuhmann relied upon.
 3 And the copy we had was poor, so we typed up the
 4 table.
 5 Can you verify for the panel and for the
 6 judge if this is the same table that's in the
 7 article?
 8 A. Yes. This would be Table 4 from the
 9 Bartrop article.
 10 Q. And again, this is just a general study
 11 of global pica behavior, not specifically related
 12 to soil pica?
 13 A. That's correct. This was an
 14 interview-type study that looked at general
 15 mouthing and pica-type behaviors.
 16 Q. And if you look, the third row down, it
 17 says "dirt." It includes under that: Yard dirt,
 18 house dust, plant pot soil, pebbles, ashes,
 19 cigarette ash, glass fragments, lint, and hair
 20 combings; is that right?
 21 A. Yes. Yes. It would go well beyond what
 22 we would consider to be relevant to soil pica for
 23 human health risk assessment.
 24 Q. So in your opinion, Dr. Kind, do the
 25 articles that Dr. Schuhmann relies upon support a

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1 prevalence or an occurrence of pica as high as 25
 2 to 50 percent?
 3 A. No, not in relation to soil pica.
 4 Q. And did anything in Dr. Schuhmann's
 5 direct testimony cause you to change your opinion
 6 that soil pica is a rare and uncommon event?
 7 A. No. It's -- soil pica is still an
 8 uncommon event.
 9 Q. Okay. So, Dr. Kind, as a toxicologist
 10 and human health risk assessor, do you mind
 11 telling the panel a little bit more about what you
 12 know about soil pica specifically?
 13 A. Sure. Soil pica is really something
 14 that occurs primarily in very young children from
 15 ages of one to two, the incidents and rates drop
 16 off dramatically after that.
 17 It's associated with ingestion of soil,
 18 typically the top 2 to 3 inches of soil, and it's
 19 been reported to occur in anywhere from 4 to
 20 20 percent of preschool children, again, depending
 21 on the age and the study and the situation.
 22 Typically it occurs on an infrequent
 23 basis. And that's why it's referred to more as an
 24 acute toxicity issue compared to a chronic
 25 toxicity issue. And the EPA assumes a soil pica

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1 ingestion rate of 1,000 milligrams per day.
 2 Q. Thank you, Dr. Kind.
 3 So it's still your opinion that soil
 4 pica behavior is uncommon and rare. And it says
 5 right here that: "Soil pica ingestion rates are
 6 only used in site-specific exposure evaluations."
 7 Can you give the panel an example of
 8 when you think it might be appropriate to use
 9 that?
 10 A. Sure. So where we see pica really come
 11 into consideration from a human health risk
 12 assessment standpoint is -- a typical situation
 13 would be when dealing with lead paint issues.
 14 There's been a lot of study, public housing, older
 15 neighborhoods where children have -- had elevated
 16 blood lead levels, and there's been a lot of study
 17 there related to ingestion of either soils or
 18 paint chips or things along those natures.
 19 You know, and especially with lead,
 20 being that lead is a developmental toxin and,
 21 obviously, that ages 1 to 6 are kind of a key
 22 developmental stage, that's where I've seen pica
 23 be of concern, is in those lead exposure types of
 24 issues.
 25 Q. Nothing at the Henning site would cause

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1 you to believe that soil pica is an appropriate
2 parameter to consider?
3 A. That's correct.
4 Q. And it says the EPA assumes a soil pica
5 ingestion rate of 1,000 milligrams a day; correct?
6 A. That is correct, yes.
7 Q. And that -- how does that compare to the
8 state default child soil ingestion rates?
9 A. Yes. So I could not find any states
10 that use pica ingestion rates as part of their
11 default nonindustrial residential exposure
12 assessments. I've listed a few in the table here.
13 Louisiana, as we discussed, is
14 200 milligrams per day. Importantly, California
15 is 200 milligrams per day. And as everybody
16 knows, California tends to be very progressive on
17 their health protection, so they tend to be more
18 conservative than other states, more health
19 protective.
20 Texas is 200 milligrams per day. US EPA
21 is 200 milligrams per day as well.
22 Q. So, Dr. Kind, you've been a toxicologist
23 for 22 years?
24 A. Yes.
25 Q. You've been conducting human health risk

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1 assessments throughout the country for 22 years?
2 A. Yes.
3 Q. In connection with your work as a human
4 health risk assessor and a toxicologist, you
5 routinely submit work plans to state and federal
6 agencies to address chemical releases and spills;
7 correct?
8 A. That's correct.
9 Q. Have you ever included a work plan that
10 was based upon soil pica ingestion rates instead
11 of the default ingestion rate?
12 A. I have not.
13 Q. So it's fair to say you've never had one
14 of your work plans rejected because it failed to
15 include a soil pica ingestion rate as opposed to
16 the default ingestion rate?
17 A. That's correct. I've never had any
18 comments related to adding a soil pica type of
19 exposure.
20 Q. And just so the panel is clear, I want
21 to talk about -- the state default ingestion
22 rates, those apply to any property regardless of
23 how big that property is; correct?
24 A. That's correct, yes.
25 Q. So whether it's big enough for one house

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1 or big enough for 20 houses, you still use the
2 default ingestion rate?
3 A. Yes. Again, those are considered the
4 nonindustrial or residential exposure scenario
5 ingestion rates.
6 Q. So this is clearly an area where you and
7 Dr. Schuhmann disagree?
8 A. Yes.
9 Q. So let's broaden the scope of this
10 event. How many toxicologists and human health
11 risk assessors work with CTEH?
12 A. You know, over the years that I've been
13 here, it would be 20-plus.
14 Q. Are you aware -- do you have any
15 knowledge of any risk assessor or toxicologist at
16 CTEH being told to use a soil pica ingestion rate
17 instead of the default ingestion rates?
18 A. I'm not aware of that, no.
19 Q. And now, Dr. Kind, this is important.
20 In your opinion, if the soil pica incidence were
21 as high as Dr. Schuhmann claims, would you expect
22 the state to adopt the 1,000 milligrams a day as a
23 default ingestion rate?
24 A. Yes. Well, yeah, I would expect some
25 type of an assessment related to pica as part of

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1 the default scenario.
2 Q. All right. For all the reasons that
3 you've talked about?
4 A. Yes.
5 Q. Now, when you testified earlier in these
6 proceedings, you talked about the conservatism
7 built into your toxicological risk evaluation and
8 dose calculations.
9 Can you elaborate a little bit more for
10 us about how this relates to the default child
11 soil ingestion rates?
12 A. Sure. So, you know, as part of EPA and
13 RECAP risk assessment methodology, you work under
14 what's called a reasonable maximum exposure. And
15 it extends, really, through a lot of the different
16 assumptions involved in the risk assessment.
17 So, for example, the nonindustrial
18 scenario assumes that a child is on the property
19 for 350 days of a year. It assumes that they're
20 there for 24 hours a day. And when you look at
21 soil exposure rates, this 200 milligrams of soil
22 per day really represents the upper bound of --
23 upper 95th percentile of ingestion rates. This,
24 again, is what we call a reasonable maximum
25 exposure.

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<p style="text-align: right;">Page 1410</p> <p>1 And, you know, this is built in to 2 include sometimes when children consume more soil, 3 sometimes when they consume less soil. So if you 4 look at the EPA exposure factors handbook -- and 5 this is the handbook that you go to to look at 6 default and ranges for different types of activity 7 patterns, ingestion rates, breathing rates, things 8 like that -- all that information's in there for 9 risk assessors to use. 10 For children that do not exhibit soil 11 pica behavior, the recommended daily soil average 12 and dust ingestion rate is 80 milligrams per day, 13 of which only half of that, or 40 milligrams of 14 soil per day, is considered in that total of 80. 15 So when we're assuming that a child's 16 consuming 200 milligrams per day on a daily basis, 17 that's really in excess of 120 milligrams per day 18 of what they are likely to actually consume, which 19 is 80 all the way down to 40 milligrams of soil 20 per day. 21 So essentially, you're being 22 conservative, you're overestimating that daily 23 exposure, and that would account for an occasional 24 pica exposure throughout the year -- throughout 25 that one to six years of childhood.</p>	<p style="text-align: right;">Page 1412</p> <p>1 get, compare that to the soil-barium LOAEL -- 2 again, that's the lowest observed adverse effect 3 level -- or let's compare that to the dose that a 4 child would receive during -- of barium sulfate 5 during a radio-graphical procedure where they do, 6 again, a contrast X-ray of the GI tract. So 7 that's what this table represents, is the output 8 of that analysis. 9 If you look at the first column on the 10 left side, again, we look at both wet weight and 11 dry weight. Obviously, the next column, the 12 anolytes, barium. The third column is all the 13 different ways we looked at barium concentrations. 14 Again, we looked at the maximum site 15 concentration, the maximum location from any -- 16 the maximum location average from any split 17 samples at a location. And we looked at the 18 95 percent upper confidence limit of the mean from 19 Area 6. So again, that's kind of the maximum 20 likely exposure over that area. Area 6 was the 21 highest UCL area of the property. 22 And then we looked at the 95 percent UCL 23 at the site, which would be reflective of 24 potential exposure roaming over all of the 25 investigation areas on the site.</p>
<p style="text-align: right;">Page 1411</p> <p>1 So you're still not underestimating 2 their total exposure because you're using a rate 3 that is higher than the daily average rate that a 4 child would consume. 5 Q. So if I understand your testimony 6 correctly, the default soil ingestion rates 7 applied to children throughout the country, 8 including here in Louisiana, those are 9 health-protective even if one considers the 10 infrequent occurrence of soil pica behavior. Did 11 I say that right? 12 A. That's correct, yes. 13 Q. Great. So, Dr. Kind, I think you and I 14 agree that using a soil pica ingestion rate to 15 evaluate the Henning property is absurd. But even 16 though we agree on that, you've done those dose 17 calculations, haven't you? 18 A. I did do those dose calculations, yes. 19 Q. And so run through those calculations 20 with the panel so that they can understand. 21 A. Sure. So this table is similar to the 22 tables that I showed last week when I testified. 23 And what we did here is we said, all right, let's 24 say a child is ingesting 1,000 milligrams of soil 25 per day. Let's compare the dose that they would</p>	<p style="text-align: right;">Page 1413</p> <p>1 So if you look at the next column, 2 that's the exposure point concentration in the 3 soil in milligrams per kilogram, so that's the 4 actual barium concentration in the soil. 5 So inside the yellow box, the first 6 column is the child dose at the LOAEL, so that's 7 how many milligrams of barium per day a child 8 would receive at the LOAEL dose. 9 Q. And that's assuming the toxic forms of 10 barium, which we don't have here; correct? 11 A. That's correct, that's assuming a 12 soluble form of barium. And this is also a value 13 for chronic daily exposure, so this is, again, 14 likely to overestimate the risk for a short-term 15 acute exposure, so another level of conservatism 16 in there. 17 The next column is how many times below 18 that barium dose in 1,000 milligram soil of pica 19 ingestion rate would be compared to the LOAEL. So 20 you can see the highest concentration would be the 21 dry weight barium site max -- so right below the 22 bold line there across the table -- is still 128 23 times below what that barium dose would be at the 24 LOAEL. 25 So, again, we have a large margin of</p>

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<p style="text-align: right;">Page 1414</p> <p>1 safety there. If we really look at the 95 percent 2 UCL across the site -- which, again, is going to 3 be more reflective than a child spending their 4 entire six years in one location -- you're 700 5 times below that LOAEL dose again. 6 So we've got -- you know, here, we're 7 looking at, you know, soluble barium, which we 8 don't have necessarily on-site, and we have this 9 LOAEL which is designed for chronic exposure. So 10 a couple of extra layers of conservatism built in 11 there and we still have a wide margin of safety on 12 that dose. 13 Q. So based on these calculations, there's 14 no threat to human health even if one considers a 15 soil pica ingestion rate? 16 A. And considers that it's soluble barium. 17 Now, the next two columns, we've said: 18 All right, we've got barium sulfate out here. 19 What are we going to compare a barium sulfate dose 20 to? Because you can't find -- in the 21 toxicological literature, you can't find a dose of 22 barium sulfate that represents an adverse effect. 23 So we made, here, the comparison was, 24 again, to how much barium a child would consume on 25 a radiological procedure where they used barium as</p>	<p style="text-align: right;">Page 1416</p> <p>1 barium in either fish or crawfish tissue. 2 And the way we did that was we looked at 3 barium in the soil. Here, we just looked at the 4 site max barium concentration. We took 5 bioconcentration factors, which are empirical 6 values that tell you how much of a constituent 7 that's in a certain media -- in this case, 8 sediment -- would be taken up into the edible 9 tissues of a fish or a crawfish. 10 So we applied those. And first of all, 11 we noticed that those values are about 50 percent 12 or half of the tissue screening values that were 13 established by the State of Louisiana from the 14 East White Lake matter. 15 And then we said, all right, well, how 16 much either fish filets or how many pounds of 17 crawfish would you have to eat in a day to either 18 get to that LOAEL dose of barium or to get to that 19 radiological dose of barium that we talked about? 20 And that's what you see in the last two 21 bullets. You know, somebody would have to eat 22 about 50 pounds of fish filets in a day to reach 23 that LOAEL dose of barium or about 430 pounds of 24 crawfish in a day to reach that LOAEL dose for 25 barium. And then when you switch over and look</p>
<p style="text-align: right;">Page 1415</p> <p>1 a contrast media for GI X-rays. 2 That turns out to be about 3 1700 milligrams of barium per procedure or per 4 dose. And again, when you compare that dose to 5 what you would get from soil at 1,000 milligrams 6 of soil per day, you can see it ranges from -- 7 anywhere from 233 times below that dose to almost 8 1300 times below that dose. Again, looking -- 9 considering that this is barium sulfide on the 10 property. 11 Q. Thank you, Dr. Kind. 12 And so based upon this, is there any 13 risk to human health posed by the Henning site 14 from a toxicological standpoint? 15 A. No. No. 16 Q. All right. And finally, we've heard a 17 lot of discussion from plaintiffs' counsel about 18 crawfish and bass ponds. Have you done the 19 analysis to show that it's safe from a human 20 health perspective to eat crawfish or bass at this 21 site? 22 A. Yes, we did that analysis as well. 23 Q. And tell the panel what you found. 24 A. Well, in the short answer, what we found 25 is that you would not reach harmful levels of</p>	<p style="text-align: right;">Page 1417</p> <p>1 at -- considering this is barium sulfate, you look 2 at, well, how many pounds of fish filets would you 3 have to eat to reach that X-ray dose -- X-ray 4 suspension dose, and that's about 3400 pounds of 5 fish filets or 27,000 pounds of crawfish per day. 6 So you really just can't get there based upon site 7 concentrations. 8 Q. So from a toxicology and human health 9 risk assessment point of view, is there any reason 10 that you see why Mr. Henning can't use his 11 property for a bass pond or to grow and harvest 12 crawfish? 13 A. No, there's no reason from a 14 toxicological standpoint. 15 Q. And, Dr. Kind, after listening to the 16 testimony from all of plaintiffs' lawyers and 17 experts, have you changed your opinions in this 18 case? 19 A. No, I have not. 20 Q. It's still your opinion that this site 21 poses no risk to human health; correct? 22 A. Not from a toxicology standpoint, that's 23 correct. 24 MR. GROSSMAN: No further questions. 25 JUDGE PERRAULT: They've offered</p>

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<p>1 Exhibit 163.1. Any objection to that being 2 admitted into evidence? 3 MR. WIMBERLEY: I do object, Your Honor. 4 The exhibits contain information that 5 was not presented till today. It contains an 6 analysis that Mr. Kind didn't do till this 7 week. It hadn't been given to the 8 plaintiffs. We hadn't been able to consult 9 our experts. We weren't allowed to depose 10 Mr. Kind on this. 11 JUDGE PERRAULT: Specifically what part of 12 the exhibit are you talking about? 13 MR. WIMBERLEY: Slide 7 and 8. 14 JUDGE PERRAULT: 7 and 8. 15 MR. GROSSMAN: Your Honor, it's rebuttal 16 testimony. It's rebuttal evidence. 17 JUDGE PERRAULT: Slide 7 and 8 is 18 Toxicological evaluation of pica dose and 19 analysis of barium related to fish/crawfish. 20 That's the extent? 21 MR. WIMBERLEY: Yes, sir. 22 JUDGE PERRAULT: All right. Counsel, please 23 proceed. Your argument. 24 MR. GROSSMAN: Your Honor, this is -- it's 25 rebuttal evidence. It's rebuttal</p>	<p>1 show of Dr. Kind? 2 CROSS-EXAMINATION 3 BY MR. WIMBERLEY: 4 Q. Dr. Kind, good morning. 5 A. Good morning. 6 Q. Did you mention pica in your expert 7 report that was submitted to this panel? 8 A. I did not. 9 Q. And when I asked you in court last week 10 if you had done a pica analysis, you said you 11 hadn't; right? 12 A. I said I considered that and did not 13 include that in my analysis. 14 Q. You had done no quantitative pica 15 analysis of the soil on this property; right? 16 MR. GROSSMAN: Your Honor -- 17 A. Not before -- 18 MR. GROSSMAN: -- I just want to make a 19 point. We talked about this last week, that 20 there were some issues on cross-examination 21 that overlap with rebuttal. And it was 22 pretty clear that -- from Your Honor's ruling 23 that we were going to save our rights to 24 present that through rebuttal testimony. 25 So to the extent that Dr. Kind looked at</p>
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<p>1 calculations. Dr. Kind heard testimony from 2 Dr. Schuhmann and others about the potential 3 uses of this property. He did his own 4 calculations, his own analysis in response to 5 that. I think that's very clearly admissible 6 under the rebuttal standards, particularly 7 under Chapter 6. 8 JUDGE PERRAULT: I agree. The objection's 9 overruled. 10 MR. GREGOIRE: Thank you, Your Honor. 11 JUDGE PERRAULT: Now, remember, we have a 12 backstop date, so if there's been a problem 13 with discovery that has lent either side a 14 problem, you know, you can have a chance, if 15 you ask for it, to review the information 16 that wasn't given over in discovery. And I'm 17 giving that to both sides. 18 MR. WIMBERLEY: I'm not going to waste this 19 panel's testimony, Your Honor. I'll proceed. 20 JUDGE PERRAULT: All right. So the 21 objection's overruled. The Exhibit 163.1 is 22 admitted. 23 Please proceed. 24 (Discussion off record.) 25 MR. WIMBERLEY: Does Scott have the slide</p>	<p>1 some numbers, did some rough calculations, 2 things of that nature before, I would just 3 ask that that be considered as this is his 4 rebuttal case. 5 MR. WIMBERLEY: May I proceed? 6 MR. GROSSMAN: Yes. 7 JUDGE PERRAULT: Okay. I want -- are you 8 objecting? 9 MR. GROSSMAN: It's not an objection; that's 10 just making sure that the record's clear that 11 this is rebuttal testimony. 12 MR. KEATING: It's not your turn, Lou. 13 JUDGE PERRAULT: Let's don't go back and 14 forth. 15 Okay. Please proceed. 16 MR. WIMBERLEY: Thank you, Your Honor. 17 BY MR. WIMBERLEY: 18 Q. So again, Mr. Kind, when I asked you 19 last week if you had done a quantitative pica 20 analysis of the soil properties on this site, on 21 Mr. Henning's property, you said no; correct? 22 A. I had not done a quantitative analysis 23 at that point, that's correct. 24 Q. That's something you decided was 25 important enough to do on Super Bowl weekend?</p>

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1 A. Again, I did that in rebuttal to
 2 Mr. Schuhmann's opinions.
 3 Q. And you did that in the last couple
 4 days; right?
 5 A. The last -- within the last, well, week
 6 or a little bit less than a week.
 7 Q. And you haven't submitted the
 8 documentation on your pica analysis to this panel,
 9 have you?
 10 A. Well, to the extent that it's in the
 11 slides. But beyond that, I have not submitted
 12 anything else.
 13 Q. You haven't submitted any backup at all?
 14 A. Not to the slides.
 15 Q. Did you submit any backup to me or
 16 Mr. Henning?
 17 A. Again, no, I did not submit anything
 18 besides the slides.
 19 Q. Did you hear Mr. Henning tell this panel
 20 on Friday that this property may become a
 21 subdivision in the future with lots of kids living
 22 there?
 23 A. I missed Mr. Henning's testimony on
 24 Friday. I was driving.
 25 Q. Are you aware that he said that?

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1 A. I am not, no.
 2 Q. I want to take a look --
 3 MR. WIMBERLEY: Scott, if you would, go to
 4 Slide 2 of Mr. Kind's slide show.
 5 BY MR. WIMBERLEY:
 6 Q. This paper, the update on pica
 7 prevalence and contributing causes, that's the
 8 paper that Dr. Schuhmann said was of suspect
 9 peer-review; correct?
 10 A. I don't recall that specifically.
 11 Again, I can't see the slide that you've got up
 12 either. I don't know if you can --
 13 Q. It's Slide 2 of your slide show, the
 14 Blinder and Salama paper.
 15 Do you recall Dr. Schuhmann saying that
 16 even though it reflected maybe a 50 percent
 17 prevalence of pica, he was suspect of the
 18 peer-review analysis that went to the paper and he
 19 didn't consider that 50 percent in his evaluation?
 20 A. I do remember him say he did not
 21 consider it, 50 percent. My point here, again,
 22 was that this includes all forms of pica and is
 23 not specific to soil pica.
 24 Q. Okay.
 25 MR. WIMBERLEY: Would you turn over to

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1 Slide 4, Scott?
 2 BY MR. WIMBERLEY:
 3 Q. Do you recall Dr. Schuhmann testified
 4 that when he looked at the literature, he found a
 5 prevalence rate of somewhere around 10 percent, or
 6 1 in 10 children, to have pica behavior, soil pica
 7 behavior?
 8 A. I do recall that, yes.
 9 Q. Okay. And your slide here, I'm going to
 10 read it: "Soil pica is the ingestion of unusually
 11 high amounts of soil and is limited to consumption
 12 of surface soils, i.e., the top 2 or 3 inches.
 13 Generally occurs in 4 to 20 percent of preschool
 14 children." Is that your words?
 15 A. I believe that's a statement from the
 16 ATSDR.
 17 Q. And 4 percent would be 1 in 25; right?
 18 A. Yes.
 19 Q. And 20 percent would be 1 in 5?
 20 A. Yes.
 21 Q. So you're saying that this occurs in 1
 22 in 25 to 1 in 5 children?
 23 A. Well, I'm saying that's what the range
 24 that's been listed. Again, I think it would
 25 typically be in that 10 percent or less range.

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1 But that's the range that's been considered in the
 2 literature.
 3 Q. And is it still your opinion that
 4 Mr. Schuhmann's opinion that if prevalences are
 5 generally around 10 percent, or 1 in 10, it's an
 6 overestimation?
 7 A. Again, I think it depends upon the
 8 study. I think most studies -- the better studies
 9 show that it would be 10 percent or less in that
 10 population.
 11 Q. But 10 percent falls squarely within the
 12 range that you found; right?
 13 A. It does.
 14 MR. WIMBERLEY: Scott, would you go to
 15 Slide 7, please?
 16 BY MR. WIMBERLEY:
 17 Q. Dr. Kind, this is your brand-new soil
 18 pica dose quantitative analysis; is it not?
 19 A. This is the pica dose evaluation, that's
 20 correct.
 21 Q. Was it done in accordance with RECAP?
 22 A. Well, this is not necessarily a
 23 RECAP-type calculation. Again, it uses the same
 24 methodology and defaults, but this is more of,
 25 again, a toxicological dose-type calculation.

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1 Q. Yes or no, and then you can explain.
 2 Was it done in compliance with RECAP?
 3 A. Again, this is not a RECAP
 4 compliance-type of calculation, so no, this is not
 5 a RECAP compliance calculation. This is a
 6 toxicology dose calculation. It does incorporate
 7 some of the defaults and methods in RECAP, but
 8 this really is a toxicology dose calculation.
 9 Q. The fourth column here, EPC in soil,
 10 what does that "EPC" stand for?
 11 A. That stands for exposure point
 12 concentration.
 13 Q. And how did you determine what the
 14 exposure point concentration was in this table?
 15 A. Well, again, that's listed in the column
 16 to the left of that, "analyte parameters." So it
 17 could be the site maximum concentration, it could
 18 be the maximum average location concentration, or
 19 the 95 UCL from Area 6 or from the site.
 20 Q. So that 6,111, is that in dry weight or
 21 wet weight?
 22 A. Well, that one's in wet weight. If you
 23 look down below, you'll see 7410 is that
 24 corresponding location in dry weight.
 25 Q. I see. Okay.

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1 The 95 UCL for Area 6, was that
 2 calculated in conformance with RECAP's rules?
 3 A. Yes. I mean, that would be using ProUCL
 4 to calculate what RECAP considers surface soil for
 5 that area.
 6 Q. What data points went into that
 7 analysis?
 8 A. Well, that would be all of the barium
 9 data points from 15 feet or less.
 10 Q. Did you draw an AOI in conformance with
 11 RECAP?
 12 A. I would have used the values that were
 13 considerable in Area 6 which was established by
 14 ERM.
 15 Q. So you would consider the low data
 16 points outside what RECAP would consider the AOI;
 17 right?
 18 A. Again, I did not draw an AOI. I'm using
 19 what the data points were that were considered to
 20 fall within Area 6.
 21 Q. That's what I thought.
 22 Where is the -- let's talk a little bit
 23 about what the LOAEL is. That's the lowest
 24 observed adverse effects level; correct?
 25 A. That's correct.

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1 Q. And that's the level where you start
 2 observing sickness; right?
 3 A. That's the lowest level of adverse
 4 effects. Again, this value here is derived with
 5 the statistical technique called benchmark dose
 6 modeling, so it actually represents the lower
 7 95 percent bound of that LOAEL value, so it's
 8 actually -- statistically it's the lower bound of
 9 where that could possibly be, so it falls a little
 10 lower than the value that was actually measured in
 11 the study.
 12 Q. So statistically, this is meant to show
 13 you the level at which you start seeing people get
 14 sick; right? Or animals.
 15 A. Well, again, this is a two-year chronic
 16 drinking water study in laboratory animals.
 17 Q. This is not a safe level to ingest;
 18 right?
 19 A. Well, again, this is the lowest level
 20 where we've seen adverse health effects, so we
 21 kind of look at what's the margin of safety below
 22 that. This is not the no observed adverse effect
 23 level; you're correct.
 24 Q. It's not safe to ingest soil at a
 25 rate -- with an LOAEL? That's where you get sick?

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1 A. Well, again, that's where laboratory
 2 animals might see effects. Again, that was
 3 drinking water study, which involves a much more
 4 direct mechanism, absorption. So, you know, I
 5 don't know that you could say that that level
 6 would cause sickness in people, but again, we're
 7 using that as the lowest value in scientific
 8 literature that's shown to cause health effects.
 9 Q. And the no adverse effects level -- no
 10 observed adverse effect levels, the NOAEL, that's
 11 not on this table; right?
 12 A. That's right. I don't believe that, due
 13 to the dosing -- the range of doses they tested,
 14 they identified a NOAEL in this study.
 15 Q. And the reference dose, which is what
 16 the EPA says is a safe level to ingest, it's not
 17 on this table; correct?
 18 A. That's correct.
 19 Q. You did no comparison in your
 20 quantitative analysis to the reference dose?
 21 A. Again, I did the comparison to the LOAEL
 22 because that's where we've, again, seen actual
 23 adverse health effects. The reference dose is
 24 a -- again, a conservative health-based value that
 25 considers a lot of levels of uncertainty factors

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1 in there.
 2 So it doesn't necessarily tell us at
 3 what dose you might actually start to see risks.
 4 And that was what I was trying to do in this
 5 table, is look at a dose where you might actually
 6 start to see risks.
 7 Q. In any regulatory health risk
 8 assessment, the reference dose is the gold
 9 standard the EPA says is safe; right?
 10 A. I wouldn't necessarily say that, no.
 11 Q. Dr. Schuhmann went through this analysis
 12 and showed that if you plugged 1,000 milligrams
 13 per kilogram of ingestion rate -- I'm sorry.
 14 1,000 milligrams per day ingestion into her
 15 tables, it showed that the reference dose was
 16 busted; isn't that true?
 17 A. I don't believe so. I think --
 18 Q. Did you see --
 19 A. I think what Mr. -- or Dr. Schuhmann did
 20 was calculate a RECAP standard based upon that
 21 1,000 milligrams per day. I don't think he did
 22 anything with the reference dose.
 23 Q. Okay. But nonetheless, the reference
 24 dose is not compared in your table; correct?
 25 A. Again, no, it's not because I was

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1 looking at levels where actual effects have been
 2 seen, not the reference dose. Because, again,
 3 that contains multiple levels of uncertainty
 4 factors in there.
 5 Q. And again, you did this analysis this
 6 weekend -- or this past week?
 7 A. This past week, yes.
 8 Q. Because you thought it was important?
 9 A. Well, it had been brought up in the
 10 case. No, I did not think that pica was an
 11 important consideration here, and this helps to
 12 demonstrate that.
 13 Q. And you didn't submit this to the panel
 14 and you didn't submit it to me?
 15 A. Just in the form of the slide show.
 16 Q. Don't you think it would be important
 17 for this panel to have a fully-reviewed health
 18 risk assessment that includes a pica analysis?
 19 A. Again, I mean, pica is just not really a
 20 valid consideration for this type of a scenario.
 21 Q. Because no kids are going to live here?
 22 A. No. Because, again, we're talking about
 23 a residential scenario. We don't have anything,
 24 again, outstanding and special related to
 25 something like lead paint or, you know, a very

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1 bio-accumulative toxin, something that would be
 2 acting on developmental nervous systems.
 3 I mean, we're looking at a very general
 4 residential exposure scenario here, and that is --
 5 you know, about 200 milligrams per day, again, is
 6 protective of children under those scenarios.
 7 Q. If you don't look at pica on a property
 8 that can be a neighborhood for children playing in
 9 the dirt, many children, when do you ever look at
 10 pica, in your opinion?
 11 A. Again, you would look at pica under very
 12 specific situations. And I talked about that
 13 earlier in relation to lead contamination, for
 14 example.
 15 MR. WIMBERLEY: That's all the questions I
 16 have, Your Honor.
 17 JUDGE PERRAULT: Okay. Does the panel have
 18 any questions?
 19 PANELIST OLIVIER: I have one question.
 20 Stephen Olivier.
 21 Dr. Kind -- and this is just for
 22 clarification, just to make sure that I
 23 understand this correctly.
 24 I think, in your original testimony, you
 25 had stated that you didn't deem it, I guess,

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1 necessary to consider a pica evaluation in
 2 your initial one. And is -- was that
 3 strictly because it was thought that we were
 4 dealing with barium sulfate, which is, you
 5 know, considered to be nontoxic in the
 6 surface or maybe the upper couple feet of the
 7 soil?
 8 THE WITNESS: Not necessarily, but that is a
 9 good point to raise. But we did do our
 10 screening, you know, not really -- well, not
 11 assuming at all that barium was in the form
 12 of barium sulfate. So really, it has to go,
 13 again, with what's that situation. And here,
 14 we're looking at a general residential
 15 situation. There's nothing remarkable about
 16 the constituents that are on the site. So
 17 really based upon those reasons, I didn't do
 18 any type of quantitative pica analysis.
 19 PANELIST OLIVIER: Okay. Thank you.
 20 JUDGE PERRAULT: Anybody else?
 21 Your Exhibits 162.1 through 162.7, those
 22 were presentations, but I'm looking through
 23 my list, and they were never offered into
 24 evidence as such, as your presentations. So
 25 do you want to offer them now? It's 162.1,

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1 162.2, 162.3, 162.4, 0.5, 0.6, 0.7.
2 MR. GROSSMAN: Yes, Your Honor. That was the
3 point of bringing it up this morning. We
4 didn't offer, file, and introduce them after
5 we had our experts testify, and so this
6 morning we wanted to make it clear that we
7 are offering those as exhibits.
8 JUDGE PERRAULT: Okay. Any objection to
9 Exhibit 162.1 through 162.7?
10 MR. WIMBERLEY: No, Your Honor. With the
11 same conditions that we discussed this
12 morning.
13 JUDGE PERRAULT: Okay. So they all are
14 admitted, as is 161.1, which were already
15 agreed to.
16 All right. Well, I must have
17 misunderstood. I thought you had told me
18 they had already been admitted.
19 MR. GROSSMAN: I apologize, Your Honor, for
20 the miscommunication.
21 JUDGE PERRAULT: Okay.
22 MR. GROSSMAN: Thank you, Dr. Kind.
23 JUDGE PERRAULT: Thank you very much.
24 THE WITNESS: Thank you. Y'all have a good
25 week.

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1 JUDGE PERRAULT: All right. Call your next
2 witness.
3 MS. RENFROE: Thank you, Your Honor. We call
4 Angela Levert.
5 ANGELA LEVERT,
6 having been first duly sworn, was examined and
7 testified as follows:
8 DIRECT EXAMINATION
9 BY MS. RENFROE:
10 Q. Good morning, Ms. Levert.
11 A. Good morning.
12 MS. RENFROE: We have a presentation that
13 Ms. Levert has prepared that we would like to
14 offer now as Chevron Exhibit 163.2. And a
15 copy has been provided to Counsel already.
16 JUDGE PERRAULT: All right.
17 MS. RENFROE: May I approach the Court?
18 JUDGE PERRAULT: Yes, you may.
19 MS. RENFROE: Thank you, Your Honor.
20 BY MS. RENFROE:
21 Q. Mrs. Levert, you just were sworn in
22 again. And for the record, you were qualified and
23 admitted last week as an expert in the disciplines
24 of environmental chemistry, data evaluation, human
25 health risk assessment, and RECAP; correct?

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1 A. Yes.
2 Q. So with that clarification, let's begin.
3 And you're here to address some of the issues that
4 were raised both by Dr. Schuhmann as well as by
5 various witnesses from ICON; correct?
6 A. That's correct.
7 Q. Before we get into Dr. Schuhmann's
8 comments or critiques of your RECAP evaluation,
9 let's talk about some of his conclusions to narrow
10 the issues.
11 So with respect to groundwater, is it
12 your understanding from Dr. Schuhmann's
13 presentation and his testimony that -- and his
14 report, that his RECAP evaluation shows that even
15 if the shallow groundwater is Class 2, that the
16 groundwater, nevertheless, meets his calculated
17 MO-2 groundwater standard?
18 A. Correct.
19 Q. So you both agree that there is not an
20 exceedance of an applicable RECAP standard for
21 groundwater; correct?
22 A. Correct.
23 Q. So I'm going to note that, on
24 groundwater, you and Dr. Schuhmann are in
25 agreement.

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1 A. Okay.
2 Q. Moving now to the -- to his RECAP
3 calculated -- his RECAP evaluation as to soil for
4 protection of groundwater.
5 Is it your understanding that his
6 analysis showed -- again, even if the shallow
7 groundwater is Class 2, that the soil meets his
8 calculated MO-2 soil for groundwater protection
9 standards?
10 A. That's correct. In his report, yes.
11 Q. So again, you both agree that there is
12 no exceedance of an applicable RECAP standard of
13 soils for protection of groundwater?
14 A. That's my understanding of his report.
15 Q. Now, let's turn to soil direct contact
16 analysis that he did and you did.
17 You saw and you heard his testimony that
18 the only RECAP exceedances that Dr. Schuhmann
19 identified were based on a soil direct contact
20 standard using a pica ingestion rate; correct?
21 A. Yes.
22 Q. And we heard much about -- from
23 Dr. Schuhmann, about his use of this pica
24 ingestion rate, including his comment about it
25 being derelict not to consider a pica ingestion

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<p style="text-align: right;">Page 1438</p> <p>1 rate. And so this is a point where the two of you 2 disagree; true? 3 A. Yes. 4 Q. Now, we just heard Dr. Kind explain why 5 he did not deem it appropriate to use a pica 6 ingestion rate in his human health risk assessment 7 based on a dose evaluation. 8 So now, what I'd like you to do is tell 9 this panel, how did you account for potential 10 future uses of this property as a residential 11 property or even a residential development with 12 children living on it if you didn't use a pica 13 analysis? 14 A. The evaluation I performed using the 15 residential scenario of RECAP does assume that 16 children will be present on the property, that 17 they will come in contact with the soil 350 days a 18 year and, as part of that contact, will have 19 ingestion, dermal, and inhalation exposure to 20 constituents in the soil. 21 It assumes a default ingestion rate, as 22 Dr. Kind talked about, that is the upper 23 percentile on the average ingestion rate, and 24 that's how I accounted for the presence of 25 children in my evaluation in accordance with RECAP</p>	<p style="text-align: right;">Page 1440</p> <p>1 average ingestion rate. 2 Q. In your experience, Ms. Levert, has 3 either DNR or DEQ ever identified a pica ingestion 4 rate to be applicable to a property in Louisiana 5 and, therefore, the basis for a remediation or 6 corrective action? 7 A. I've not had that experience in my 8 career working under RECAP. Again, the provision 9 allows for that in a very specific scenario if 10 that were identified to be a specific concern and 11 especially with childhood development toxicants. 12 Dr. Kind mentioned lead. 13 There are specific situations that could 14 raise that concern, but it's not intended to be 15 broadly applied and hasn't, in my experience 16 anyway, been broadly applied as a standard for 17 potential residential development or even site 18 closures where residential development or 19 residential land use is recognized. It hasn't 20 been applied that way. 21 Q. All right. Now, have you gone back and 22 recalculated the RECAP standards that 23 Dr. Schuhmann would have reached using his method 24 if he had not used the pica ingestion rate but 25 instead used RECAP's default ingestion rates for a</p>
<p style="text-align: right;">Page 1439</p> <p>1 guidance. 2 Q. Dr. Schuhmann pointed to, I believe it 3 was Section 2.14.4 of RECAP to justify his use of 4 a pica ingestion rate. Did you hear that 5 testimony? 6 A. Yes, I did. 7 Q. And what is your opinion about whether 8 Section 2.14.4 of RECAP requires a pica analysis 9 at this property just because it may be a large 10 piece of property -- a large piece of real estate? 11 A. That section does not require or compel 12 a pica analysis simply because there's a large 13 property or because the property may be developed 14 in the future for residential use. 15 It provides for that analysis when a 16 specific concern is identified, and that would be 17 a very localized concern in general that would 18 require examination of site-specific factors. 19 It does not, in fact, require that we 20 broadly assume that because a property has 21 potential for development, that we must perform a 22 pica evaluation. 23 The reason that we don't need to do that 24 is because the default ingestion rate does include 25 some safety margin with regard to higher than</p>	<p style="text-align: right;">Page 1441</p> <p>1 residential scenario with children? 2 A. I have. I've done that calculation, 3 yes. 4 Q. So let's walk through that work that you 5 did and explain your analysis to the panel. 6 Starting with barium. So what are you showing on 7 the slide that Dr. Schuhmann calculated as a 8 standard for barium -- again, we're talking about 9 soils direct contact -- 10 A. Right. 11 Q. -- using the pica ingestion rate. 12 A. About 3200 milligrams per kilogram. And 13 this is actually a pretty straightforward 14 comparison because Dr. Schuhmann and I both used 15 the same RECAP algorithms. In fact, we used the 16 same updated toxicity factor which, again, assumes 17 the more mobile form of barium. And his 18 calculation simply included the pica ingestion 19 rate. 20 When I instead plug in the default RECAP 21 ingestion rate, we actually get the same answer. 22 His result would then be 15,600 with regard to 23 RECAP's expression of standards, we round to two 24 significant figures to express the standards in 25 RECAP. We would have arrived at the same</p>

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1 conclusion, and that is 1600 milligrams per
 2 kilogram.
 3 Q. Now, does any -- or do any of the ICON
 4 and ERM samples at the site exceed the
 5 16,000 milligram per kilogram standard?
 6 A. No. There were no concentrations above
 7 the 16,000 milligram per kilogram MO-2 standard.
 8 Q. For barium?
 9 A. For barium.
 10 Q. Now, of course, this analysis, as you
 11 said, this assumes that the barium at the site is
 12 barium -- is some form of toxic or mobile barium,
 13 when, in fact, we know that, based on the barium
 14 speciation data contained in Appendix H to
 15 Chevron's most feasible plan, that the barium at
 16 the site is in fact barium sulfate?
 17 A. That's correct. And we elected to use
 18 that tox factor and develop this MO-2 standard to
 19 provide a conservative evaluation and to use that
 20 information as the basis for the plan that we've
 21 provided to you.
 22 Q. And is it your understanding that the
 23 Henning most feasible plan does not contain any
 24 plan to treat barium at the soil -- in the soils?
 25 A. That's correct. My understanding is

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1 their remedia- -- ICON's remediation does not
 2 focus on or include remediation specifically to
 3 address barium in the upper 2 feet.
 4 I understand that soil may be moved
 5 aside and replaced but not -- there is not a
 6 remediation for barium in the zero to 2-foot
 7 interval, which is where the barium is identified
 8 as being above screening.
 9 Q. So Henning doesn't propose to treat the
 10 barium in the upper 2 feet of soil?
 11 A. That's correct.
 12 Q. All right. Let's go through the same
 13 exercise briefly with arsenic. I know that the
 14 panel heard Dr. Schuhmann take arsenic off the
 15 table, if you will. But for the completeness of
 16 the record we're making here, I'd like you to
 17 address arsenic.
 18 What standard did Dr. Schuhmann
 19 calculate for arsenic using a pica ingestion rate?
 20 A. In his report, he calculated and
 21 provided a standard of about 4.7 milligrams per
 22 kilogram. Now, when we plug in the ingestion
 23 rate, the standard ingestion rate, the result that
 24 he would have identified using that ingestion rate
 25 would actually be 23 milligrams per kilogram.

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1 That would not, in fact, be the final
 2 RECAP standard because that considers only the
 3 noncarcinogenic tox factors for arsenic. He was
 4 looking at an acute evaluation in a
 5 noncarcinogenic exposure.
 6 For RECAP, we also look at the chronic
 7 carcinogenic tox factors, and we would calculate a
 8 standard for arsenic that is very, very low, in
 9 the single digits.
 10 It's recognized that the natural levels
 11 of arsenic in Louisiana, and actually across the
 12 whole country, are higher than the level of
 13 arsenic that we would calculate using that default
 14 EPA and Louisiana tox factor.
 15 Well, it is for that reason that DEQ
 16 identified what background is in Louisiana and
 17 identified that that falls within the target range
 18 for arsenic and adopted that background level as
 19 the protective standard for residential land use
 20 in Louisiana at the screening option.
 21 Q. And what is that level?
 22 A. It's 12. 12 milligrams per kilogram.
 23 Q. Again, were there any soil samples
 24 generated either by ICON or by ERM that exceeded
 25 that standard of 12 milligrams per kilogram?

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1 A. There's just one sample on the property,
 2 a result reported by ICON out of the -- oh,
 3 there's approximately -- a little over 100 results
 4 available for arsenic. And in dry weight, there
 5 is one result, 12.2, that was above that screening
 6 standard, the split result of 4 does not identify
 7 an exceedance of the standard.
 8 The way that we look at arsenic when
 9 comparing to a screening standard as well as
 10 higher management options in RECAP, is to compare
 11 the background value -- I'm sorry. An average
 12 value. That's how RECAP would have us compare to
 13 a background standard.
 14 The average of that split, the average
 15 of a potential AOI is less than 12 and, therefore,
 16 below the RECAP screening standard.
 17 Q. So fair to say that in RECAP language,
 18 arsenic is not a constituent of concern at this
 19 site?
 20 A. That's correct. Would not be identified
 21 as a site-related COC warranting further
 22 evaluation beyond screening.
 23 Q. Before we leave arsenic, one last
 24 question about it. Is there any evidence at this
 25 site that the arsenic that's present in the soils

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<p style="text-align: right;">Page 1446</p> <p>1 is connected to oil and gas operations? 2 A. Well, we don't see that in the data 3 distribution. And when you look at an average 4 concentration with individual data points, when 5 you look at an average concentration across the 6 potential AOIs, that's below state-specific 7 background. I just -- we don't see the evidence 8 that there's a connection to the oil and gas 9 activity. 10 Q. Let's now turn to another issue that was 11 discussed and raised by Dr. Schuhmann and, in 12 fact, by Mr. Miller at some point last week, and 13 that's the issue of the SPLP data for groundwater 14 protection. 15 So you heard Dr. Schuhmann's criticism 16 of your work. One of his comments was that you 17 used SPLP data and a default DF Summers 18 attenuation factor to determine a groundwater 19 protection standard for barium. 20 Do you recall that? 21 A. I do. 22 Q. So I want you to address that now. 23 And I've got -- you've got on your 24 Slide 4 a portion of RECAP. And here's my 25 question: Does RECAP actually recommend the</p>	<p style="text-align: right;">Page 1448</p> <p>1 default of 20 will be applicable in all 2 situations, but it is allowed, it's provided for 3 under the screening option of RECAP. 4 And this is a section out of Appendix H, 5 which is where you can find the extreme detail 6 associated with stepping through the RECAP 7 process, Screening Option, MO-1, MO-2. So it is 8 provided for. 9 Q. And specifically, again, for the record, 10 you're pointing to RECAP Appendix H 1.1.1 at 11 page 9, in particular, Subsection C; correct? 12 A. Yes. 13 Q. How about your MO-2 analysis? Was the 14 use of a default Summers dilution factor allowed 15 by RECAP as part of your MO-2 analysis? 16 A. Again, it is provided for under MO-2. 17 This is RECAP Appendix H. And if you read the 18 header on that section, it is: "Evaluation of 19 soil using a leach test and MO-2 RECAP standards." 20 And if you read through that section, 21 what you see there is you can calculate a 22 site-specific DF Summers using equation 61 23 provided in RECAP. It also includes a provision 24 that says the default value of 20 may be used for 25 the DF Summers.</p>
<p style="text-align: right;">Page 1447</p> <p>1 collection of SPLP data? 2 A. It does. It recommends SPLP as the 3 leaching methodology to be used. And DEQ, in 4 implementing RECAP, has recommended the use of 5 SPLP as the way to evaluate in a site-specific way 6 the soil to groundwater protection pathway, 7 especially for metals. 8 And this is a piece of RECAP that gets 9 exactly to that. This is in the MO-2 section. 10 And what you see there is discussing, when you 11 move into site-specific evaluation, it is strongly 12 recommended that SPLP data be collected. And 13 that's consistent with my experience in 14 implementing projects with DEQ under RECAP for -- 15 well, for 20 years, is, particularly for metals, 16 that is recommended. 17 And I know that it's something that we 18 have worked with DNR on as well, specifically for 19 various metals that are relevant to E&P sites. 20 Q. Let's move now to your use of the 21 Summers dilution factor of 20. Was your use of a 22 default Summers dilution factor of 20 allowed by 23 RECAP as part of your screening option analysis? 24 A. It is allowed by RECAP as part of the 25 screening. Now, that doesn't mean that the</p>	<p style="text-align: right;">Page 1449</p> <p>1 Now, it is incumbent on us as risk 2 assessors, incumbent on me to confirm that 20 is 3 in fact appropriate and representative for this 4 site. There are circumstances when that may not 5 be the case. And so that's an analysis that I 6 have to perform to confirm that this provision 7 that does allow for the use of that default factor 8 is in fact representative for our site. 9 Q. While we're on this point about the use 10 of SPLP data, are there other RECAP documents that 11 you're familiar with that speak to the use of SPLP 12 data and a DF Summers factor? 13 A. Sure. Yes. As you can imagine, this is 14 a routine part of implementation of RECAP; that 15 is, the use of SPLP and how specifically to apply 16 it. This is a comment, a question and response 17 out of the FAQs. And the question is: What is 18 SPLP and how does it compare to RECAP standards? 19 And what you see outlined in this 20 discussion here is for screening option, which is 21 the first paragraph, and then for the additional 22 management options, including MO-1, 2, and 3, 23 there is a question of how do you apply and 24 compare SPLP to the standards. 25 And it's noted under both the screening</p>

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<p style="text-align: right;">Page 1450</p> <p>1 option and the section on the management options 2 that DF Summers of 20 is provided for. Again, you 3 have to make sure that it's appropriate for a 4 particular site, but it is provided for, yes. 5 Q. And you're now referring to Exhibit 75 6 that is already in evidence, specifically pages 49 7 and 50? 8 A. That sounds right. 9 Q. All right. Now, does the size of the 10 AOI, which we heard some discussion from 11 Dr. Schuhmann about last week -- does the size of 12 the AOI factor in to your use of a default DF 13 Summers factor? 14 A. Well, again, I talked about the way that 15 the concept of AOI applies to our RECAP 16 evaluation. The first one being in that global 17 sense, a final AOI, but I also mentioned the use 18 of the preliminary AOIs. 19 Well, one way to identify a preliminary 20 AOI for the soil to groundwater pathway, which is 21 what we're talking about here, is to compare the 22 data to the default soil to groundwater protection 23 screening standard. And for barium, that value is 24 2,000. 25 But because we've collected SPLP data</p>	<p style="text-align: right;">Page 1452</p> <p>1 source areas, contiguous source areas for barium 2 to groundwater, are greater than a half acre. And 3 then there are the additional lines of evidence 4 that we look at as well. 5 Q. So, you know, you mentioned a minute 6 ago, you have to -- as a risk assessor, you have 7 to then evaluate whether it's appropriate to use a 8 DF Summers factor of 20 or some other value in 9 addition to considering the fact that it's 10 allowed. 11 Did you evaluate the appropriateness of 12 it and have you somewhat explained that? 13 A. Well, I did. But there's more to it in 14 that -- okay. We're looking at the potential 15 source sizes, but also looking at the other lines 16 of evidence regarding do we see attenuation that 17 is consistent with this factor? Do we see 18 attenuation happening, period? 19 Well, when we look at the barium data in 20 the vertical profile, the soil profile, and see 21 those declining concentrations, once you get below 22 the zero to 2-foot interval and well above the 23 water table, the answer is yes, we definitely see 24 the attenuation happening. 25 In addition, when we look at the</p>
<p style="text-align: right;">Page 1451</p> <p>1 here to perform a site-specific evaluation of that 2 pathway, that's not what we apply. We're moving 3 beyond that, that preliminary AOI definition, and, 4 instead, to determine whether or not the use of 5 the default factor of 20 is applicable and 6 representative for this site, we have to look at 7 other information, including source size and other 8 indicators of whether or not that attenuation 9 factor is appropriate. 10 Now, one of the ways that we look at 11 source size on projects like this is to look at, 12 for example, the historic E&P features, the pit 13 sizes, and tank battery sizes, because those are 14 identified as the sources of the constituents that 15 are present. So that's one way to look at it. 16 Another way that we look at it 17 specifically for the soil to groundwater pathway 18 here is to actually look at the SPLP data. And we 19 can identify locations and areas, if applicable, 20 where there is an exceedance of a screening 21 standard in the leachate, that is that the 22 leachate represents a source of constituents to 23 groundwater, a source of impact. 24 And when we look at those kinds of 25 informations for this site, I don't see that the</p>	<p style="text-align: right;">Page 1453</p> <p>1 groundwater data set and identify across the 2 property, with the exception of the one location 3 next to the blowout, that concentrations are below 4 the screening standard, again, that confirms the 5 attenuation and representativeness of a DF Summers 6 that we've selected here. 7 Q. Thank you. 8 MS. RENFROE: Your Honor, I misspoke a moment 9 ago. I thought Exhibit 75 was already in 10 evidence, but it's not and I will offer and 11 introduce it now. And it is the RECAP 12 frequently asked questions document that 13 Ms. Levert was just testifying about. 14 MR. CARMOUCHE: No objection. 15 JUDGE PERRAULT: No objection, so ordered, it 16 shall be admitted. 17 And Exhibit 163.2, are you still going 18 over that? 19 MS. RENFROE: I am. 20 JUDGE PERRAULT: I'll let you finish. 21 MS. RENFROE: Thank you. But just so it's 22 clear, I am offering that as well. 23 JUDGE PERRAULT: Yes. 24 BY MS. RENFROE: 25 Q. So let's move on.</p>

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<p style="text-align: right;">Page 1454</p> <p>1 We've addressed your assessment of soil 2 for groundwater protection for barium. Let's now 3 turn back to Dr. Schuhmann and this issue of SPLP. 4 Did Dr. Schuhmann use SPLP data in 5 determining his groundwater protection standard 6 for barium? 7 A. No, he did not use SPLP data. 8 Q. Instead, he calculated his own standard 9 for groundwater protection using only the ICON 10 data; is that correct? 11 A. That's correct. 12 Q. So I'd like you to explain to the panel 13 exactly how he did that. 14 A. Sure. 15 THE WITNESS: Do you mind if I stand? 16 JUDGE PERRAULT: No. Please go ahead. 17 A. So he used the soil data paired with the 18 groundwater data in Location H-12 to develop a 19 partitioning factor, what we call K subD, and it 20 really is basically the ratio of soil 21 concentration to groundwater concentration. That 22 is the empirical -- if you will, the empirical 23 partitioning factor. 24 He then used that partitioning factor 25 and a target concentration in groundwater of</p>	<p style="text-align: right;">Page 1456</p> <p>1 at H-12 where barium was elevated. And we 2 identified that to be a result of the residual 3 fluids associated with the historic blowout. 4 And so, in my opinion, this is not 5 representative of the soil to groundwater 6 migration pathway for barium and not 7 representative, then, of what would be an 8 appropriate partitioning factor to be applied 9 across the site, which is what he did. 10 Now, there are 15 additional locations 11 where that kind of data is available. 12 Q. Excuse me. When you say "that kind of 13 data," you're talking about paired data where 14 you've got soil samples at the surface and 15 groundwater samples in the same column? 16 A. Correct. Meaning a soil boring was 17 installed and then a decision was made to install 18 the monitoring well in that location, and so we 19 have barium concentrations in the soil column and 20 measured barium concentrations in the groundwater. 21 And you can see that there are 22 locations, other locations where we do see 23 elevated concentrations of barium relative to the 24 screening standard and relative to background at 25 the surface, and that is MW-2 and 3 and 16 and 22,</p>
<p style="text-align: right;">Page 1455</p> <p>1 2 milligrams per liter -- that would be the 2 Class 2 standard because he was looking at a 3 Class 2 evaluation -- and developed the soil to 4 groundwater protection standard for that Class 2 5 evaluation of 289 milligrams per kilogram. 6 So using the data in H-12 partitioning 7 factor, protecting Class 2 groundwater, this was 8 his soil to groundwater protection standard -- 9 BY MS. RENFROE: 10 Q. For barium? 11 A. -- that he identified. 12 For barium specifically, yes. 13 Q. Now that you've explained how he did it, 14 do you agree with how Dr. Schuhmann calculated his 15 KD -- K subD factors and his soil groundwater 16 protection standard? 17 A. Well, I don't find that to be 18 representative across the site. In this 19 particular location, look at this soil 20 concentration at 305. In fact, that concentration 21 is what we have identified as site-specific 22 background for barium. 23 So the soil column in this location, in 24 fact, is not affected with barium. This 25 groundwater concentration is the single location</p>	<p style="text-align: right;">Page 1457</p> <p>1 18. You can see that those are concentrations of 2 barium above screening. 3 And when you look across the groundwater 4 concentrations, as we've been talking about, there 5 are very, very low concentrations of barium across 6 the site. When we performed the same partitioning 7 calculation that is essentially just a ratio of 8 soil concentration to groundwater concentration, 9 you can see that, in every other location across 10 the site, the empirical partitioning factor is 11 much, much higher and, in many cases, orders of 12 magnitude higher. 13 And that simply means that barium wants 14 to be in the soil. It wants to stay in the soil. 15 It doesn't have significant partitioning into the 16 groundwater. And that's consistent with the 17 barium profile, vertical profile concentrations 18 that we saw in the soil column, which essentially 19 return to background within the upper 10 feet at 20 most. 21 Q. So I thought Dr. Schuhmann told us last 22 week that there was only one location where he 23 found paired data of barium in soil at the surface 24 and a groundwater sample in that same column? 25 A. That's not the case. We do have these</p>

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<p style="text-align: right;">Page 1458</p> <p>1 15 additional locations where we have borings and 2 monitoring wells completed and soil and 3 groundwater data. So we do have a body of data 4 that extends across the remainder of the site and 5 not just at the location H-12. 6 Q. So if Dr. Schuhmann had taken all of 7 this other site data into account, tell the panel 8 what soil for protection of groundwater standards 9 he would have calculated for barium. 10 A. Yes. And to make it clear, I performed 11 this exercise to really examine his process and 12 the results that we would get. So this is using 13 the ICON data set in dry weight and the ICON 14 groundwater data to identify these empirical K 15 subDs. 16 And then, using those partition factors, 17 simply performing the exercise that he did to 18 identify the soil to groundwater protection 19 standard for Class 2 groundwater. So for an MCL, 20 barium standard of 2 in groundwater, these are the 21 soil to groundwater standards, protection 22 standards, that he would have calculated for these 23 other locations. 24 Q. And, Ms. Levert, specifically, again for 25 the record we're making, you're pointing to the</p>	<p style="text-align: right;">Page 1460</p> <p>1 dilution factor? 2 A. So this is the exercise that -- this is 3 the concentration that you would arrive at prior 4 to applying any dilution attenuation factors, 5 whether we're talking in the lateral or a 6 DF Summers factor. So this is prior to the 7 application of a DF Summers. 8 Q. And, of course, as you and the panel 9 will recall, he criticized your application of a 10 DF Summers of 20. But did he calculate a 11 DF Summers dilution factor of his own? 12 A. He did. He performed a site-specific 13 calculation using equation 61 of -- we have 14 Appendix H. And he identified a DF Summers of 1. 15 And so his groundwater protection standard was 16 equal to that 289 based on his empirical K subD 17 multiplied by the DF Summers of 1, resulting in 18 the groundwater protection standard of 19 289 milligrams per kilogram. 20 Q. And just to go back and compare, so 21 using a DF Summers of 1, he gets 289 for the H-12 22 location for barium? 23 A. That's correct. 24 Q. Now, is it -- in your opinion and based 25 on your experience with RECAP, is a Summers</p>
<p style="text-align: right;">Page 1459</p> <p>1 last row on Slide 9 of your presentation that's 2 entitled "Soil to Groundwater Protection 3 Standards"? 4 A. That's correct. 5 Q. And can you just give us an example, 6 identify one site, one location, where you 7 compare -- and please compare the standard that he 8 should have calculated compared to the one 9 standard that he did calculate? 10 A. Sure. So I'll simply select MW-2, given 11 that there's a concentration above the screening 12 standard here for barium, a very low groundwater 13 concentration for barium, which results in a 14 groundwater protection standard that's about 15 230 milligrams per kilogram. And that's quite 16 different from his 290 that was calculated for the 17 H-12 location. 18 Q. Sorry. Is that 230,172 -- 19 A. Correct, 230,000, uh-huh. 20 Q. -- compared to his 289.6? 21 A. Correct. Correct. Milligrams per 22 kilogram. 23 Q. Now, did you do -- did you basically 24 track through his analysis using all of the paired 25 data at the site with or without applying a</p>	<p style="text-align: right;">Page 1461</p> <p>1 dilution factor of 1 appropriate to assess the 2 actual attenuation of barium in soils from the 3 surface down to shallow groundwater? 4 A. Well, in my opinion, it's not 5 representative at this site. And that's the 6 component or the evaluation that I had to perform 7 to determine that is it appropriate for me to 8 utilize that default DF Summers that is offered 9 under screening, offered under the management 10 options. 11 And you -- based upon looking at the 12 soil data itself, the vertical profile and the 13 groundwater data, my conclusion is no, a 14 DF Summers of 1 is not representative. 15 Another way to look at it is to look 16 specifically at the results for barium in the 17 leachate samples, the SPLP samples, and compare 18 that to the groundwater result. Because really, 19 that's what the DF Summers is getting at -- 20 right? -- what is the attenuation that happens 21 between what is released into leachate and arrives 22 at groundwater? What is that difference? 23 And when I look simply at that simple 24 ratio and, independently, I identify that a 25 DF Summers of 1 is not representative, that</p>

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1 groundwater concentrations are less than the
 2 leachate concentrations, a DF Summers of 1 is not
 3 representative of what we actually see happening
 4 at the site.
 5 Q. Thank you for that.
 6 So after all of this debate and comments
 7 and criticisms that Dr. Schuhmann made of your
 8 RECAP evaluation, did he actually recommend
 9 corrective action for barium in soils, or even any
 10 other constituent, to protect groundwater at the
 11 site?
 12 A. Well, as I understand his testimony,
 13 he's not recommending remediation associated with
 14 those calculations, as I understand his testimony.
 15 Q. In fact, did you hear him say that he
 16 did not intend for his scoping analysis, which is
 17 what he called his exercise, to be used for
 18 remediation at all; correct?
 19 A. That's what I understand.
 20 Q. All right. Let's move to the next
 21 topic.
 22 MS. RENFROE: Jonah, if you can take this
 23 down for a moment, please.
 24 BY MS. RENFROE:
 25 Q. The next topic I want to talk about --

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1 we're moving from SPLP and the use of a Summers
 2 dilution factor in barium, we're moving from that
 3 now to SPLP and chlorides. Fair?
 4 A. Yes.
 5 Q. All right. So you heard Mr. Miller talk
 6 for quite a while about SPLP versus 29-B leachate
 7 as the appropriate test for determining the
 8 leachability of soils; right?
 9 A. Yes.
 10 Q. So that's the debate that I want to go
 11 to now.
 12 Now, did you also hear Mr. Miller
 13 testify that SPLP chlorides is an acceptable
 14 procedure?
 15 A. Yes. I don't think there's a
 16 disagreement about the test itself being an
 17 appropriate leaching test. I don't think there's
 18 a disagreement about that.
 19 Q. Okay. Good.
 20 So did you also follow Mr. Miller's
 21 testimony that a problem with SPLP chlorides was
 22 the use of a default Summers dilution factor of
 23 20?
 24 A. Yes.
 25 Q. So that's where the issue is, that's

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1 where the disagreement is?
 2 A. Well, as I understand it, that is his
 3 primary concern, applying a default DF of 20,
 4 recognizing the soil to water ratio that is used
 5 in the SPLP test, yes.
 6 Q. So my question to you now is when you
 7 were doing your work, your RECAP evaluation
 8 looking at chlorides, did you use a Summers
 9 dilution factor at all in your SPLP chlorides
 10 analysis?
 11 A. I did not in evaluating the
 12 concentrations of chloride SPLP. My evaluation of
 13 the chloride SPLP data looked at Class 3
 14 groundwater, recognized the lateral attenuation
 15 that would happen between the site and some
 16 hypothetical receptor, and incorporated only a
 17 lateral attenuation factor, which I found to be
 18 appropriate, given our delineation of chlorides at
 19 the site. And that was a hypothetical MO-1
 20 evaluation of potential discharge to surface
 21 water.
 22 I did not include a DF of 20. I did
 23 didn't include a DF Summers at all and, through
 24 that hypothetical evaluation, actually identified
 25 that both SPLP chloride and the leachate chloride,

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1 the 29-B result, were less than that hypothetical
 2 Class 3 leachate standard. And that's what I
 3 would call it, it's a Class 3 leachate standard.
 4 Q. So let's now take your standard and
 5 apply it to the site data. How many places at the
 6 property, the Henning property, were -- did you
 7 find where SPLP chloride data exceeded the MCL
 8 screening benchmark of 250 milligrams per liter?
 9 A. So I think what you're describing now is
 10 putting aside the Class 3 leachate standard, now
 11 let's look specifically at where do we find SPLP
 12 chlorates to be elevated period, above a screening
 13 benchmark like the MCL. There's one location on
 14 the site. That's location H-12 where SPLP data
 15 was collected from 48 to 50 feet. So right at the
 16 water table. And, in fact, that interval is at
 17 least partially saturated. I think both
 18 investigators have acknowledged now that that
 19 interval is at least partially saturated. So H-12
 20 is the location.
 21 Q. And are there any 29-B leachate
 22 locations that exceed Mr. Miller's recommended
 23 standard of 500 milligrams per liter?
 24 A. Yes. So he's looking at two benchmarks
 25 here, one being the 500. I know that's one that

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<p style="text-align: right;">Page 1466</p> <p>1 he's talked about quite a bit. There are three 2 locations. H-12, the same as the SPLP. And in 3 addition to that, H-9, which is adjacent to H-12, 4 again, at 48 to 50 feet. And then one more. 5 That's in Area 4. H-16. I know there's been a 6 lot of discussion about H-16. And that was at 34 7 to 36 feet. I think I'm getting that right. 8 Interestingly, for each of those, those 9 intervals were right at the water table and 10 recognized to be at least partially saturated. 11 Q. Has Mr. Miller recommended a remedy for 12 those locations for groundwater protection 13 purposes? 14 A. Well, as I understand his report, H-16 15 is the location that he identified in terms of a 16 soil to groundwater protection pathway remedy. 17 That is the single location. 18 Q. But didn't you hear Mr. Sills tell the 19 panel on Friday that, as you said, H-16 was 20 partially saturated? 21 A. Correct. Correct. And David Angle's 22 going to talk a bit about -- in fact, show some 23 schematics that indicate exactly where those 24 samples were taken, where the water table is, and 25 understand the partial saturation. But yes, I did</p>	<p style="text-align: right;">Page 1468</p> <p>1 A topic of disagreement between you and 2 ICON that Mr. Carmouche discussed with you last 3 week was whether barium samples should be dried 4 and ground prior to analysis. 5 Do you recall that discussion? 6 A. I do. 7 Q. And you recall presenting to the panel 8 some slides that demonstrated that the ICON barium 9 data was from the same split -- from splits from 10 the same sample locations was higher than the ERM 11 data; correct? 12 A. Correct. Right. We looked at the 13 graphs together. 14 Q. Now, did you hear Mr. Miller agree with 15 you that grinding will actually result in higher 16 constituent detections? 17 A. Yes. So I do believe we're in agreement 18 about that. 19 Q. And explain to the panel why that is an 20 issue here. 21 A. Well, from a RECAP and risk assessment 22 perspective, what I'm interested in is what is 23 environmentally available or, said differently, 24 what is available for biological uptake in the 25 ambient environment upon contact with the soil.</p>
<p style="text-align: right;">Page 1467</p> <p>1 hear Mr. Sills talk about that. 2 Q. To continue to understand where this 3 issue is taking us, is it your understanding that 4 Mr. Miller is recommending at H-16 some corrective 5 action for about 0.17 of an acre of soil? 6 A. That's my understanding, yes. 7 Q. But under your RECAP evaluation, even 8 that corrective action of 0.17 acres of soil would 9 not be needed; correct? 10 A. That's correct. Based on my RECAP 11 analysis, that is correct. 12 Q. So while we spent quite a bit of time 13 last week on this SPLP data versus 29-B leachate 14 issue -- and one might view it as kind of an 15 interesting scientific debate -- 16 A. It is. 17 Q. -- it's really not much of an issue at 18 this site, is it? 19 A. No. No. It is small in scale in terms 20 of its implications for this site. 21 Q. Next issue, barium sampling and the 22 comments that Mr. Carmouche confronted you with 23 regarding an ITRC paper. I believe a topic of 24 disagreement that you and Mr. Carmouche discussed 25 last week was -- let me rephrase that.</p>	<p style="text-align: right;">Page 1469</p> <p>1 So from my perspective, biologically available is 2 what I'm after. 3 Q. Do you remember this document that 4 Mr. Carmouche asked you about while 5 cross-examining you last week? And I'm going to 6 put it on the Elmo. And it's a slide that he 7 showed you. 8 Do you recognize this from your 9 testimony last week under cross-examination from 10 Mr. Carmouche? 11 A. Yes, I do. 12 Q. And this document on the left, it's 13 entitled "ITRC." And then there's a table that 14 Mr. Carmouche included in his discussion with you; 15 correct? 16 A. Yes. 17 Q. All right. Now, you recall that he 18 showed you some snippets from this ITRC document? 19 A. Yes. 20 Q. And asked you questions about them as it 21 relates to the sample preparation method concern 22 that you raised? 23 A. Yes. 24 Q. Now, did Mr. Carmouche give you a chance 25 to review the full document?</p>

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<p style="text-align: right;">Page 1470</p> <p>1 A. We did not look at the full document 2 together. 3 Q. And he didn't show you the full 4 document, did he? 5 A. No. 6 Q. I want to show you some additional 7 passages from this ITRC document. And let's -- I 8 want to know if he presented these to you when he 9 was cross-examining you about your concern about 10 these elevated barium concentrations in the ICON 11 data that you attributed to their preparation of 12 drying and grinding. 13 So I want to just put the title of the 14 document, the full document, here and it's the 15 ITRC soil background and risk assessment document 16 December 2021. 17 And I want to turn now to the same page 18 that Mr. Carmouche asked you some questions about, 19 which is page 143 and 144. 20 MS. RENFROE: We can take this down now, 21 Jonah. 22 BY MS. RENFROE: 23 Q. Did Mr. Carmouche show you the page that 24 said, at page 143: "Typically, the largest 25 variability in the reported results is due to the</p>	<p style="text-align: right;">Page 1472</p> <p>1 Q. And, of course, that's very relevant to 2 your point that what you're focused on is 3 understanding the concentration that would be 4 environmentally available; correct? 5 A. Right. That's what we're examining 6 here. 7 Q. Another example of something that just 8 wasn't presented to you last week but that is 9 important on this point, also on page 144, it 10 says -- let me see if I can find it. It says: 11 "For risk assessment purposes" -- let's see. Here 12 it is. 13 "For risk assessment purposes, it is the 14 environmentally available concentration of metals 15 that should be quantified, not the total 16 concentration"; right? 17 A. Correct. And that's -- 18 Q. And that's your point, isn't it? 19 A. That's what I was referring to as 20 available for biological uptake in the ambient 21 environment. 22 Q. And this page goes on to point out that 23 sample preprocessing can affect the reported 24 concentrations of environmentally available 25 metals; right?</p>
<p style="text-align: right;">Page 1471</p> <p>1 sample preparation methods used for the soil 2 sample." Did he show you that? 3 A. No. 4 Q. Did he show you the same passage in the 5 same page that said: "Different sample 6 preparation methods can produce very different 7 results for the same sample, so results may not be 8 comparable if different sample preparation methods 9 are used"? 10 A. No. But that's exactly what we looked 11 at graphically. 12 Q. All right. Moving now to page 144. Let 13 me -- 14 MS. RENFROE: Jonah, if I may have the Elmo 15 again. 16 BY MS. RENFROE: 17 Q. Even though Mr. Carmouche showed you 18 some of the passages from 144, did he show you the 19 provision that said: "For metals, soil sample 20 preparation differs, depending on whether the goal 21 is to determine the total metals concentration in 22 the sample or just the environmentally available 23 concentration of these metals." 24 He didn't show you that passage, did he? 25 A. No.</p>	<p style="text-align: right;">Page 1473</p> <p>1 A. Right. 2 Q. Again, that's your point. 3 "Sample preprocessing methods should be 4 tailored to fit the intended use of the analytical 5 data." Do you agree with that? 6 A. I do. 7 Q. And, in fact, that's what this document 8 that Mr. Carmouche confronted with you says, 9 doesn't it? 10 A. Yes. 11 Q. And, in fact, it says: "Pulverizing 12 soil" -- "pulverizing of soil is generally not 13 appropriate when the dermal exposure pathway is 14 being evaluated." 15 A. Correct. 16 Q. And so are these the reasons why you 17 raised your concern about the use -- the sample 18 preparation method that ICON used in drying and 19 grinding the metals in the soil samples? 20 A. It is. To recognize that that 21 contributes an estimate, a biased high estimate of 22 what's biologically available for uptake. 23 MS. RENFROE: Your Honor, at this time, we 24 will offer, as Chevron Exhibit 158.7, the 25 entire ITRC soil background and risk</p>

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1 assessment document.
 2 MR. CARMOUCHE: No objection.
 3 JUDGE PERRAULT: No objection, so ordered, it
 4 shall be admitted.
 5 MS. RENFROE: Thank you.
 6 And I'll hand a copy to the Court.
 7 Here, Your Honor.
 8 BY MS. RENFROE:
 9 Q. Now, even though you had these concerns
 10 about the ICON barium -- ICON's soil barium
 11 results, did you nevertheless include that data in
 12 your RECAP evaluation?
 13 A. I did. We included it for a
 14 comprehensive evaluation to provide a conservative
 15 analysis and because, in past dealings with DNR,
 16 they have required use of all the data, but it was
 17 important to me to convey any limitations that we
 18 identified or, in this case, any bias that we
 19 identified in the data set.
 20 Q. So again, while you raised these
 21 concerns about the usability of some of the ICON
 22 data, specifically the sample preparation
 23 method -- and it was discussed last week -- it
 24 really does not change your analysis or the
 25 conclusions you've reached?

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1 A. It does not change my conclusions.
 2 Q. Next issue. Wet weight versus dry
 3 weight. We heard a bit about that last week.
 4 Does the Chevron most feasible plan submitted to
 5 this panel and in evidence as Exhibit 1, does it
 6 provide its analysis in both wet weight and dry
 7 weight?
 8 A. Yes, it does.
 9 Q. Next issue: Use of the property.
 10 There's been a lot of discussion as you've heard,
 11 Ms. Levert, about potential future uses of the
 12 Henning property. Did you track that testimony
 13 over the last week?
 14 A. I did. I have listened to all of the
 15 testimony, actually, yes.
 16 Q. And in particular, there's been a lot of
 17 discussion about potential future use of the
 18 property for a bass pond. Did you follow that
 19 testimony?
 20 A. I did, yes.
 21 Q. All right. In your opinion, based on
 22 your RECAP evaluation, would a bass pond or any
 23 other type of water feature that might intersect
 24 the shallow groundwater be protective of human
 25 health nevertheless?

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1 A. Based on what I see in the data, in my
 2 opinion, it would not be a human health concern.
 3 Now, David Angle will talk about given the depth
 4 to groundwater on this property, it's unlikely
 5 that a bass pond even to a depth of 25 feet would
 6 actually encounter the groundwater.
 7 But for purposes of providing full
 8 information about the groundwater in that kind of
 9 scenario, there are only two constituents that
 10 would raise a potential concern from the human
 11 health perspective, and that is benzene and barium
 12 at the locations H-12 and H-9.
 13 For benzene specifically, the half-life
 14 for benzene in surface water is five hours. It's
 15 just so volatile that it won't hang around in
 16 surface water, period.
 17 With regard to barium, the
 18 concentrations are just above the MCL prior to any
 19 kind of dilution. So once we take into account
 20 any sort of dilution, I mean, less than a factor
 21 of 2, concentrations are below drinking water
 22 standards.
 23 And so for that reason, examining those
 24 kinds of facts, I don't believe that the benzene
 25 and barium concentrations would pose a risk for a

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1 recreational use for a pond, a fishing pond.
 2 Q. And finally, we've heard a lot of
 3 testimony, even this morning -- questions this
 4 morning about the potential future use of the
 5 property for residential purposes; right?
 6 A. Yes.
 7 Q. I want this record to be absolutely
 8 crystal clear on what your testimony is. Did you
 9 analyze the potential future use of this property
 10 for residential purposes?
 11 A. Yes, I did.
 12 Q. And tell the panel what your analysis
 13 showed.
 14 A. It shows that the concentrations are
 15 below residential standards. And by use of a
 16 residential evaluation and the conservative
 17 assumptions associated with that relative to, say,
 18 industrial or recreational, it demonstrates that
 19 the concentrations on the property are safe for
 20 other property uses as well.
 21 Q. You heard Mr. Miller testify that a
 22 nonindustrial RECAP assessment indeed takes into
 23 account all potential future uses of the property;
 24 right?
 25 A. Right. And I believe that's why he

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<p style="text-align: right;">Page 1478</p> <p>1 referenced it that way. 2 Q. And you agree with that? 3 A. I agree with that. 4 Q. So from a RECAP perspective, Ms. Levert, 5 do the oil field constituents at the Henning 6 property in soils or groundwater limit the current 7 or potential future use of the property? 8 A. No. From a RECAP perspective, applying 9 RECAP as an applicable regulatory standard here, 10 no, I don't see a limitation with regard to human 11 health. 12 Q. So the conclusions that you presented to 13 the panel last week that are on Slide 11 of your 14 presentation, despite the interesting scientific 15 debates that were had last week, do you 16 nevertheless still stand by these conclusions? 17 A. Yes, I do. 18 Q. So despite the comments and criticisms 19 that were made of your work raised by 20 Dr. Schuhmann and Mr. Miller, your RECAP 21 evaluation supports the conclusion that there's no 22 corrective action needed for either soils or 23 groundwater at the property; is that right? 24 A. That's correct. 25 MS. RENFROE: Thank you very much. No</p>	<p style="text-align: right;">Page 1480</p> <p>1 Q. You're familiar with Chapter 6; correct? 2 A. In general, Mr. Carmouche. However, my 3 expertise is not in 29-B regulations. 4 Q. Well, this is the regulation that says 5 specific requirements for the plans that you have 6 to submit to the -- to this panel. Do you 7 understand that? 8 A. I do understand that. 9 Q. Okay. And I want to direct to 611. It 10 says: "The Commissioner of Conservation shall 11 consider only those plans filed in a timely manner 12 in accordance with these rules and orders of the 13 court." 14 Did I read that correctly? 15 A. Yes. 16 Q. And so you would agree that this is a 17 rule that we have to follow when submitting plans 18 to this panel? 19 MS. RENFROE: Again, Your Honor, I'll renew 20 my objection. It's calling for a legal 21 conclusion. 22 MR. CARMOUCHE: This is the statute that she 23 has to rely upon to -- 24 JUDGE PERRAULT: Well, you can tell her what 25 the statute says, but you're asking her for a</p>
<p style="text-align: right;">Page 1479</p> <p>1 further questions. 2 THE WITNESS: Thank you. 3 JUDGE PERRAULT: Chevron's offered 4 Exhibit 163.2 into evidence. Any objection? 5 MR. CARMOUCHE: No objection. 6 JUDGE PERRAULT: No objection, so ordered, it 7 shall be admitted. 8 All right, Counsel. 9 CROSS-EXAMINATION 10 BY MR. CARMOUCHE: 11 Q. Good morning. 12 A. Good morning, Mr. Carmouche. 13 Q. I won't be very long. 14 You would agree that in Louisiana, we 15 have environmental rules that have to be followed? 16 A. Yes. 17 Q. And that following rules is what this 18 panel has to do as well; correct? 19 MS. RENFROE: Objection, Your Honor, to the 20 extent that calls for a legal conclusion from 21 a nonlegal witness. 22 MR. CARMOUCHE: I'll show her Chapter 6, 23 Judge, and see if we can all agree that these 24 are the rules that we're playing under. 25 BY MR. CARMOUCHE:</p>	<p style="text-align: right;">Page 1481</p> <p>1 legal conclusion. 2 BY MR. CARMOUCHE: 3 Q. Did you follow this rule? 4 A. To the best of my ability, yes. 5 Q. You're aware you were shown a judge's 6 order in this case; correct? 7 MS. RENFROE: Your Honor, this goes beyond 8 the scope of my direct examination. And the 9 rule in Section 635 says that the scope of 10 rebuttal -- of his cross-examination in 11 rebuttal should be limited to the scope of my 12 direct. 13 MR. CARMOUCHE: Her direct had to do with 14 was -- is the property contaminated. I'm 15 going to show her -- I'm going to rebut her 16 testimony that she just gave. 17 JUDGE PERRAULT: What are you doing with that 18 regulation? 19 MR. CARMOUCHE: That's the definition of 20 contamination. She has to follow the rules. 21 This is what she just went through. She just 22 went through and told this panel that she 23 followed the rules. And under the rules that 24 she followed, nothing's wrong. That's her 25 direct.</p>

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Page 1482	<p>1 JUDGE PERRAULT: Wouldn't that be an argument</p> <p>2 you would give to the panel rather than to</p> <p>3 her?</p> <p>4 MR. CARMOUCHE: She has to follow the rules.</p> <p>5 I want to show she didn't follow the rules.</p> <p>6 How is that not relevant?</p> <p>7 JUDGE PERRAULT: Well, you're asking her to</p> <p>8 admit her behavior based on the legal rules.</p> <p>9 The panel's going to decide what the rules</p> <p>10 are.</p> <p>11 MR. CARMOUCHE: That's not the case. The</p> <p>12 rules she has to follow and ERM has to follow</p> <p>13 says they have to -- has to be in accordance</p> <p>14 with the rules and orders of the court.</p> <p>15 JUDGE PERRAULT: If you have evidence of</p> <p>16 that, just present the evidence.</p> <p>17 MR. CARMOUCHE: I'm trying.</p> <p>18 JUDGE PERRAULT: Well, do you have a --</p> <p>19 MR. CARMOUCHE: I have a court order. It's</p> <p>20 already in evidence. The court order is in</p> <p>21 evidence.</p> <p>22 JUDGE PERRAULT: So if everything's</p> <p>23 date-stamped and she didn't follow something</p> <p>24 according to the rules of the court, asking</p> <p>25 her her opinion on the rules isn't going to</p>	Page 1484	<p>1 A. I do not think the groundwater is</p> <p>2 usable?</p> <p>3 Q. Correct.</p> <p>4 A. By the definitions and the objective</p> <p>5 criteria identified in RECAP, it's not identified</p> <p>6 as a useable aquifer; that is, a zone that has</p> <p>7 potential beneficial use.</p> <p>8 As a Class 3 aquifer, as we've</p> <p>9 identified it, it would not be a zone with</p> <p>10 potential beneficial use and not, therefore,</p> <p>11 meeting the definition of a useable aquifer.</p> <p>12 Q. You agree that you do not think that the</p> <p>13 soil and groundwater is unsuitable for its</p> <p>14 intended purposes?</p> <p>15 A. From my RECAP perspective, I do not</p> <p>16 believe that the soil and groundwater are</p> <p>17 unsuitable for their intended purposes. From a</p> <p>18 human health perspective and RECAP perspective.</p> <p>19 Q. And do you know if your testimony was</p> <p>20 given to the court, Judge Cain?</p> <p>21 A. I don't know.</p> <p>22 MR. CARMOUCHE: That's all the questions I</p> <p>23 have.</p> <p>24 MS. RENFROE: Just one follow-up, Your Honor,</p> <p>25 if I may.</p>
Page 1483	<p>1 help you any.</p> <p>2 MR. CARMOUCHE: I'm not going to ask her</p> <p>3 opinion on the rules. I'm going to ask her</p> <p>4 if she considered that this property was</p> <p>5 contaminated, which was ruled by the court.</p> <p>6 JUDGE PERRAULT: Keep your questions to the</p> <p>7 contamination rather than asking her opinion</p> <p>8 on the rules. Okay?</p> <p>9 MR. CARMOUCHE: Well, first, Your Honor, this</p> <p>10 611 -- so you know and the panel knows --</p> <p>11 she, as a scientist, has to follow this rule.</p> <p>12 JUDGE PERRAULT: Okay. And the rule can --</p> <p>13 you can put the rule into evidence, but ask</p> <p>14 her what she did. But don't ask her her</p> <p>15 opinion on the law.</p> <p>16 MR. CARMOUCHE: I don't think I did.</p> <p>17 JUDGE PERRAULT: Or whether she complied with</p> <p>18 the law. Just ask her what she did.</p> <p>19 MR. CARMOUCHE: That's what I'm doing.</p> <p>20 JUDGE PERRAULT: Okay. Just don't ask her</p> <p>21 any more legal opinions.</p> <p>22 MR. CARMOUCHE: All right.</p> <p>23 BY MS. RENFROE:</p> <p>24 Q. You would agree, Ms. Levert, that you do</p> <p>25 not think the groundwater is usable?</p>	Page 1485	<p>1 JUDGE PERRAULT: All right.</p> <p>2 REDIRECT EXAMINATION</p> <p>3 BY MS. RENFROE:</p> <p>4 Q. When you just said, Ms. Levert, that the</p> <p>5 shallow groundwater was not usable, was that</p> <p>6 because of oil field constituents in it or for</p> <p>7 other reasons?</p> <p>8 A. No. Based upon the objective criteria</p> <p>9 identified in RECAP for classification, which is</p> <p>10 the framework for determining a useable</p> <p>11 groundwater zone.</p> <p>12 Q. So it's not because of the potential</p> <p>13 presence of oil field constituents that renders</p> <p>14 that zone unusable?</p> <p>15 A. No.</p> <p>16 Q. Is that correct?</p> <p>17 A. That's correct.</p> <p>18 MS. RENFROE: Thank you. No further</p> <p>19 questions.</p> <p>20 JUDGE PERRAULT: Does the panel have any</p> <p>21 questions?</p> <p>22 PANELIST OLIVIER: Yeah. This is Stephen</p> <p>23 Olivier.</p> <p>24 This is mostly for clarification. I did</p> <p>25 hear you say regarding SPLP chlorides that</p>

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<p>1 you didn't use the Summers dilution factor</p> <p>2 and you concluded that the limitation based</p> <p>3 on your calculation was 250?</p> <p>4 THE WITNESS: No.</p> <p>5 PANELIST OLIVIER: It's not?</p> <p>6 THE WITNESS: So let me clarify that. I was</p> <p>7 using that as a benchmark to say where is</p> <p>8 SPLP chloride -- where is SPLP chloride above</p> <p>9 a screening standard at all.</p> <p>10 The limit that we calculated, that I</p> <p>11 calculated for the Class 3 groundwater is</p> <p>12 shown in our -- actually, it's identified in</p> <p>13 the narrative, in the text of my RECAP</p> <p>14 evaluation.</p> <p>15 It's the GW-3 standard times the</p> <p>16 dilution attenuation factor for lateral</p> <p>17 transport. And that value is 90 times 440.</p> <p>18 So it's a relatively large value, given</p> <p>19 the distance to a receiving water body. I</p> <p>20 was simply using that 250 as a benchmark to</p> <p>21 say is there anywhere on this property where</p> <p>22 SPLP chloride was above a screening value, if</p> <p>23 you will. And there was only one, and that</p> <p>24 was H-12.</p> <p>25 PANELIST OLIVIER: Okay. And then so -- but</p>	<p>1 Dr. Helen Connelly.</p> <p>2 JUDGE PERRAULT: All right, Dr. Connelly.</p> <p>3 Please state your name for the record.</p> <p>4 THE WITNESS: Helen Connelly.</p> <p>5 JUDGE PERRAULT: And please spell your last</p> <p>6 name.</p> <p>7 THE WITNESS: C-O-N-N-E-L-L-Y.</p> <p>8 HELEN CONNELLY,</p> <p>9 having been first duly sworn, was examined and</p> <p>10 testified as follows:</p> <p>11 DIRECT EXAMINATION</p> <p>12 BY MR. BRYANT:</p> <p>13 Q. Good morning, Dr. Connelly.</p> <p>14 A. Good morning.</p> <p>15 Q. Thank you for joining us again. And for</p> <p>16 the record, you were qualified last week as an</p> <p>17 expert witness in ecotoxicology, ecological risk</p> <p>18 assessment, and wetland sciences; correct?</p> <p>19 A. Yes.</p> <p>20 Q. Did you listen to plaintiffs' experts</p> <p>21 and Mr. Henning himself testify last week?</p> <p>22 A. Yes.</p> <p>23 Q. Is it fair to say, Dr. Connelly, that</p> <p>24 you're the only expert ecotoxicologist, the only</p> <p>25 expert ecological risk assessor, and the only</p>
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<p>1 on that conclusion, it doesn't -- it wasn't</p> <p>2 concluded that H-12 exceeded any leachate</p> <p>3 criteria where it was shown to be not</p> <p>4 protective from soil to groundwater?</p> <p>5 THE WITNESS: Correct. Given my analysis of</p> <p>6 a Class 3 groundwater, that is correct.</p> <p>7 PANELIST OLIVIER: Okay. Thank you. That</p> <p>8 answered my question.</p> <p>9 THE WITNESS: Okay.</p> <p>10 JUDGE PERRAULT: Any other questions from the</p> <p>11 panel?</p> <p>12 All right. Thank you very much.</p> <p>13 Call your next witness.</p> <p>14 Panel wants a 5-minute bathroom break.</p> <p>15 Let's do 10 so we don't have stragglers.</p> <p>16 So we're off the record.</p> <p>17 (Recess taken at 10:54 a.m. Back on</p> <p>18 record at 11:08 a.m.)</p> <p>19 JUDGE PERRAULT: We're back on the record.</p> <p>20 It's now 11:08, February 13, 2023, and we're</p> <p>21 still doing Chevron's rebuttal.</p> <p>22 And please call your next witness.</p> <p>23 MR. BRYANT: Good morning, Your Honor.</p> <p>24 Mitchell Bryant for Chevron. I missed</p> <p>25 appearances this morning. Chevron calls</p>	<p>1 expert in wetland sciences that the panel has had</p> <p>2 the benefit of hearing from?</p> <p>3 A. Yes. In this case.</p> <p>4 Q. And, Dr. Connelly, did you hear</p> <p>5 plaintiffs' lawyers and experts bring up issues</p> <p>6 like bass ponds and crawfishing and protection of</p> <p>7 mallards on the property?</p> <p>8 A. Yes.</p> <p>9 Q. Let me ask you first: Does the</p> <p>10 testimony that you heard last week during</p> <p>11 plaintiffs' case, during Henning Management's</p> <p>12 case, change any of the conclusions that you</p> <p>13 testified to this panel about last week?</p> <p>14 A. No.</p> <p>15 Q. Now, have you analyzed the issues that</p> <p>16 were raised in plaintiffs' case last week?</p> <p>17 A. Yes.</p> <p>18 Q. Let's talk through some of those. And</p> <p>19 let's pick up, I think, where we left off, which</p> <p>20 is with barium.</p> <p>21 Dr. Connelly, did you hear Mr. Sills sit</p> <p>22 in that seat on Friday and say that ICON is not</p> <p>23 recommending any remediation for barium?</p> <p>24 A. Yes.</p> <p>25 Q. I think he said that further evaluation</p>

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1 for barium may be needed; is that right?
 2 A. Yes.
 3 Q. But Chevron's already done that
 4 evaluation, haven't they, Dr. Connelly?
 5 A. Yes.
 6 Q. Let's be clear and make sure the record
 7 is very clear. Which party is the only party to
 8 have gone out and sampled to determine what type
 9 of barium exists on the Henning Management
 10 property?
 11 A. ERM did that on behalf of Chevron.
 12 Q. And what were the results of that
 13 testing, Dr. Connelly?
 14 A. The results were that the form of barium
 15 present on the property is barium sulfate.
 16 Q. For the record, just so the panel knows
 17 where to find this, is this speciation data in
 18 Chevron's most feasible plan, Appendix H?
 19 A. Yes.
 20 Q. And I believe the Bates number is
 21 CLDNRHM Exhibit 1, page 3402; is that right?
 22 A. Yes.
 23 Q. Keeping in mind that the barium in site
 24 soils is barium sulfate, does the barium on the
 25 property pose any risk to the vegetation or

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1 wildlife on the property?
 2 A. No, it does not.
 3 Q. Dr. Connelly, this isn't just you that
 4 has analyzed this, the federal -- federal agencies
 5 have analyzed this issue too; correct?
 6 A. Right.
 7 Q. What do they say about barium sulfate
 8 and its effects on wildlife and vegetation?
 9 A. Okay. So there's two important
 10 citations that document that barium sulfate is not
 11 an ecotoxin or a human health toxin. One is from
 12 EPA, and it's from the Community Right-to-Know in
 13 the federal register, and it says that barium
 14 sulfate is not an ecological text to toxin,
 15 including in a situation where a barium ICON may
 16 be emancipated, it is not a significant risk to
 17 ecological species. So that's one.
 18 Q. Let's talk through those one at a time.
 19 A. Sure.
 20 MR. BRYANT: I apologize. I've got
 21 Dr. Connelly's slides here. These are going
 22 to be offered as Chevron Exhibit 163.3.
 23 They've been provided to Counsel.
 24 Can I distribute them to you and the
 25 panel?

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1 JUDGE PERRAULT: Yes, please.
 2 MR. BRYANT: Thank you.
 3 BY MR. BRYANT:
 4 Q. My apologies for interrupting you,
 5 Dr. Connelly. Let's talk about the first of those
 6 federal studies that you were discussing, the EPA.
 7 A. Yes. So the EPA describes that barium
 8 sulfate is nontoxic to humans and the environment.
 9 And specifically they describe that even in a
 10 situation where barium ions may be released, it's
 11 not sufficient to warrant reporting.
 12 Q. How does that inform your opinion about
 13 the barium on the Henning Management property?
 14 A. Well, the barium on the Henning
 15 Management property is barium sulfate. I
 16 recognize that it's not toxic to the environment,
 17 and this is good US EPA support for that.
 18 Q. Dr. Connelly --
 19 MR. BRYANT: May I approach the witness, Your
 20 Honor?
 21 JUDGE PERRAULT: Yes, please.
 22 BY MR. BRYANT:
 23 Q. Dr. Connelly, I've handed you a copy of
 24 Exhibit 73. Can you explain for the panel what
 25 this document is?

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1 A. Yes. This is the federal register that
 2 has the citation that you see up there and in --
 3 specifically the EPA was talking about the
 4 Community Right-to-Know, like reporting on
 5 substances.
 6 MR. BRYANT: Your Honor, Chevron will offer,
 7 file, and introduce Exhibit 73.
 8 JUDGE PERRAULT: That's the federal register?
 9 MR. BRYANT: Yes.
 10 THE WITNESS: Yes.
 11 JUDGE PERRAULT: All right. Any objection to
 12 Exhibit 73?
 13 MR. KEATING: No objection, Your Honor.
 14 JUDGE PERRAULT: So ordered. Shall be
 15 admitted.
 16 BY MR. BRYANT:
 17 Q. Dr. Connelly, there's another federal
 18 publication that you mentioned a minute ago. Can
 19 you explain to the panel what this publication is
 20 and what it concludes?
 21 A. This is from the US Geologic Survey, and
 22 what's described here is that barium -- and it's
 23 not even quantified as barium sulfate. But barium
 24 does not have toxicological effects on plants or
 25 wildlife anywhere around barite mines or anywhere

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1 else. So a barite mine is barium sulfate being
 2 mined, and this is what the USGS says about
 3 barium.
 4 Q. Dr. Connelly, I'm going to hand you a
 5 copy of Exhibit 59.
 6 A. Thank you.
 7 Q. It's an incomplete copy. I apologize.
 8 The full document's about 800 pages.
 9 MR. BRYANT: And we'll bring that for Your
 10 Honor when we do exhibits.
 11 BY MR. BRYANT:
 12 Q. But, Dr. Connelly, is that a copy of the
 13 USGS publication that has helped inform your
 14 opinion about the barium on the Henning Management
 15 property?
 16 A. Yes, it is.
 17 MR. BRYANT: Your Honor, Chevron will offer,
 18 file, and introduce Exhibit 59.
 19 JUDGE PERRAULT: And what's the label for 59?
 20 MR. BRYANT: It is the USGS -- it is a -- I'm
 21 sorry. It's the USGS professional paper on
 22 barium sulfate.
 23 JUDGE PERRAULT: All right. Any objection?
 24 MR. KEATING: No objection, Your Honor.
 25 JUDGE PERRAULT: Exhibit 59, no objection, it

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1 will be admitted.
 2 BY MR. BRYANT:
 3 Q. Dr. Connelly, speaking of barium, you
 4 heard Mr. Sills testify, as we discussed a moment
 5 ago, that further evaluation of the barium in
 6 soils might be needed based on PCLs from West
 7 Texas A&M University. Do you remember that
 8 testimony?
 9 A. Yes.
 10 Q. What are PCLs, Dr. Connelly?
 11 A. PCLs are screening values. And the
 12 particular PCLs that he showed were from the West
 13 Texas University website. It has a calculator on
 14 it.
 15 Q. And Mr. Sills testified that he didn't
 16 know the assumptions underlying those PCLs. Do
 17 you recall that testimony?
 18 A. No.
 19 Q. Dr. Connelly, do you know the
 20 assumptions underlying those PCLs?
 21 A. Yes.
 22 Q. Let's share those with the panel. What
 23 does Mr. Sills' PCL assume about the percentage of
 24 the mallards habitat that is affected by barium?
 25 A. The PCL calculator on that website

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1 assumes an input that 100 percent -- please repeat
 2 the question. Which input is it?
 3 Q. The percentage of the mallards' habitat
 4 that's affected.
 5 A. So it assumes that 100 percent of the
 6 mallards habitat is affected by barium.
 7 Q. And what does the PCL assume about the
 8 amount of time the mallard spends in the affected
 9 portion of its habitat?
 10 A. So this screening value assumes that the
 11 mallard spends 100 percent of its time in the area
 12 impacted by barium.
 13 Q. And what form of barium does Mr. Sills'
 14 PCL assume the mallard's being exposed to?
 15 A. The input into this website -- or into
 16 this calculator is that the form of barium is a
 17 soluble form of barium, or something that has some
 18 bioavailability.
 19 Q. Now, I don't think Mr. Sills was
 20 suggesting remediation based on that number, but
 21 let's be very clear. Is a PCL an appropriate
 22 standard on which to base a remedial decision?
 23 A. No.
 24 Q. Now, you heard Mr. Sills testify that he
 25 was provided his PCL during a phone conversation

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1 with Dr. Jim Rodgers; right?
 2 A. Correct.
 3 Q. Are you familiar with Dr. Rodgers?
 4 A. Yes.
 5 Q. And Dr. Rodgers has calculated in
 6 your -- well, let me ask it this way. In your
 7 experience, has Dr. Rodgers calculated higher PCLs
 8 in the past in other instances?
 9 A. Yes. He's presented higher screening
 10 values or cleanup values for barium in soil or
 11 sediment specifically related to the mallard in
 12 other projects.
 13 Q. Tell the panel about the PCL that
 14 Dr. Rodgers calculated in the Jeanerette Lumber
 15 litigation.
 16 A. In the JLS Jeanerette Lumber case,
 17 Dr. Rodgers presented a screening value for
 18 mallards and barium of 15,000 milligrams per
 19 kilogram in soil. So that was the protective
 20 value, was 15,000 as compared to this protective
 21 value, which is about 800.
 22 Q. Now, was that ever presented to this
 23 agency?
 24 A. No. That JLS Jeanerette Lumber value
 25 was in litigation.

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<p>1 Q. So Dr. Rodgers' JLS PCL for mallards, 2 15,000. Dr. Rodgers' PCL that he submitted to 3 this agency through Mr. Sills, 832? 4 A. Correct. 5 Q. Based on the PCL that Dr. Rodgers chose 6 to propose in this case, Mr. Sills testified that 7 further evaluation may be needed on the Henning 8 Management property; correct? 9 A. Yes. 10 Q. Okay. But moving back to your analysis, 11 your original screen -- ecological risk assessment 12 that you presented to the panel last week, did 13 that already include an evaluation of mallards? 14 A. Yes. Because in my original risk 15 assessment, I included an assessment of birds that 16 have an invertebrate and plant diet, such as, for 17 example, the red-wing blackbird is in my 18 assessment and the mallard has a diet of 19 50 percent invertebrates and 50 percent plants, so 20 it represents a population of birds. 21 Q. So mallards was a possibility that you 22 considered before we ever talked about barium and 23 mallards with Mr. Sills; correct? 24 A. Correct. 25 Q. And your original analysis showed that</p>	<p>1 Q. So this calculation for Area 8 is 2 inclusive of and protective of all other areas on 3 the property? 4 A. Yes. It would be considered a 5 worst-case scenario. 6 Q. Dr. Connelly, is any further evaluation 7 or remediation needed as it relates to the 8 protection of mallards on the Henning Management 9 property? 10 A. No. 11 Q. I believe, as Mr. Carmouche mentioned 12 last week, the potential to use a shallow 13 groundwater on this property for cattle-watering. 14 Do you remember that testimony? 15 A. Yes. 16 Q. After hearing that, did you analyze the 17 potential for the use of the shallow groundwater 18 for cattle-watering? 19 A. Yes. 20 Q. What did you rely on to determine the 21 standards for drinking water for cattle -- or the 22 recommended values for drinking water for cattle? 23 A. The National Resource Council presents a 24 list of recommended water quality values for 25 livestock, including cattle, and I used that.</p>
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<p>1 the property is safe for mallards? 2 A. Yes, that's correct. 3 Q. But based on Mr. Sills' testimony and 4 plaintiffs' assertions, did you also do a 5 site-specific ecological risk assessment for 6 mallards? 7 A. Yes. 8 Q. Dr. Connelly, what did that assessment 9 show? 10 A. It showed that, using the highest 11 95 percent UCL, which is like a high average, 12 which is in Area 8, that the mallard is protected 13 from barium exposure, barium in the diet, and that 14 the hazard quotient is 0.0000162. So it's 15 significantly below a benchmark of 1 to 5, which 16 is a benchmark for ecological species, so no risk 17 is predicted. 18 Q. In fact, it's four orders of magnitude 19 below a hazard quotient that would indicate that 20 further evaluation would be needed? 21 A. Correct. 22 Q. And so the record is clear and so the 23 panel's aware, Area 8 is the area with the highest 24 UCL on the property; right? 25 A. For barium, yes.</p>	<p>1 Q. Okay. I'm going to -- 2 MR. BRYANT: May I approach, Your Honor? 3 JUDGE PERRAULT: Yes. 4 BY MR. BRYANT: 5 Q. Dr. Connelly, I've handed you a copy of 6 Exhibit 158.6. Tell the panel what that document 7 is. 8 A. It's a document about cattle. And 9 within it is a small table that shows drinking 10 water values for cattle, and that's what I looked 11 at to think about the groundwater at the property. 12 Q. So this Exhibit 158.6 is where you got 13 the benchmarks for cattle-watering that you 14 compared this property to? 15 A. Yes. 16 MR. BRYANT: Your Honor, we'd offer, file, 17 and introduce Exhibit 158.6. 18 JUDGE PERRAULT: Any objection? 19 MR. KEATING: No objection, Your Honor. 20 JUDGE PERRAULT: No objection. So ordered. 21 It shall be admitted. 22 BY MR. BRYANT: 23 Q. Dr. Connelly, based on your evaluation 24 and based on your comparison to these 25 cattle-watering benchmarks, is the shallow</p>

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<p>1 groundwater at the Henning Management property</p> <p>2 desirable for cattle-watering?</p> <p>3 A. The shallow groundwater at the property</p> <p>4 unrelated to oil field constituents has naturally</p> <p>5 high levels of manganese and sulfates that exceed</p> <p>6 the cattle-watering recommended value, so it's not</p> <p>7 a desirable drinking water source for the cattle</p> <p>8 on the property.</p> <p>9 Q. What about -- I don't see it up here,</p> <p>10 but what about iron?</p> <p>11 A. Iron is also naturally elevated. The</p> <p>12 Natural Resource -- National Research Council does</p> <p>13 not have an iron value for cattle, but many states</p> <p>14 use the human health iron value, which is</p> <p>15 0.3 milligrams per liter for cattle. And that</p> <p>16 number is significantly exceeded on the property</p> <p>17 in that shallow drinking water zone -- or shallow</p> <p>18 groundwater zone.</p> <p>19 Q. So regardless of any effect from oil and</p> <p>20 gas exploration and production conducts, is the</p> <p>21 shallow groundwater a desirable source of water</p> <p>22 for cattle-watering?</p> <p>23 A. No.</p> <p>24 Q. Last week, we also discussed a little</p> <p>25 bit during's plaintiffs' case crawfish and whether</p>	<p>1 A. Yes.</p> <p>2 MR. BRYANT: And, Your Honor, before I get</p> <p>3 too far ahead of myself, we'll offer, file,</p> <p>4 and introduce Exhibit 62, the Louisiana</p> <p>5 Crawfish Production manual?</p> <p>6 JUDGE PERRAULT: Any objection?</p> <p>7 MR. KEATING: No objection.</p> <p>8 JUDGE PERRAULT: No objection, so ordered.</p> <p>9 It shall be admitted.</p> <p>10 BY MR. BRYANT:</p> <p>11 Q. Using your education and experience and</p> <p>12 the information that you were able to gain from</p> <p>13 this crawfish production manual, did you evaluate</p> <p>14 the potential for a crawfish pond on Mr. Henning's</p> <p>15 property?</p> <p>16 A. Yes.</p> <p>17 Q. Let's first talk about groundwater. I</p> <p>18 think it was mentioned that perhaps Mr. Henning</p> <p>19 would want to fill up a crawfish pond with the</p> <p>20 shallow groundwater.</p> <p>21 Based on your review of the literature,</p> <p>22 the pond size, and Mr. Angle's calculation of</p> <p>23 yield, does the shallow groundwater yield enough</p> <p>24 to fill a crawfish pond of a standard size and</p> <p>25 depth?</p>
Page 1503	Page 1505
<p>1 this property is safe for crawfish farming.</p> <p>2 Did you evaluate that potential?</p> <p>3 A. Yes.</p> <p>4 Q. What does the literature say about the</p> <p>5 average depth and size of a crawfish pond in</p> <p>6 Louisiana?</p> <p>7 A. This is per an LSU Ag Center reference.</p> <p>8 The average depth of a crawfish pond -- crawfish</p> <p>9 need a minimum of about 9 inches of water, and a</p> <p>10 crawfish pond generally is recommended to be</p> <p>11 10 acres or larger.</p> <p>12 Q. Dr. Connelly, I'm going to hand you a</p> <p>13 copy of Exhibit 62.</p> <p>14 A. Thanks.</p> <p>15 Q. If you could, Dr. Connelly, describe to</p> <p>16 the panel what that document is.</p> <p>17 A. This is the LSU Ag Center document</p> <p>18 Louisiana Crawfish Production manual, and they</p> <p>19 update it every few years or so. So this is the</p> <p>20 most current version of it.</p> <p>21 Q. So this isn't some out-of-state document</p> <p>22 or some northeast, you know, scientific document;</p> <p>23 this is a Louisiana State University document</p> <p>24 talking about the production of crawfish in this</p> <p>25 state?</p>	<p>1 A. Okay. So the shallow groundwater on the</p> <p>2 property, in order to fill a 10-acre crawfish pond</p> <p>3 to the 9-inch depth, not considering evaporation,</p> <p>4 would take 15 years, so it's not an appropriate</p> <p>5 source for filling the pond.</p> <p>6 Q. In fact, it's a pretty impossible source</p> <p>7 to fill a crawfish pond, isn't it?</p> <p>8 A. Right.</p> <p>9 Q. Now, Dr. Connelly, did you also evaluate</p> <p>10 whether site soils have any effect on using the</p> <p>11 property for a crawfish pond?</p> <p>12 A. Yes.</p> <p>13 Q. Tell the panel about that evaluation.</p> <p>14 A. Yes. So the constituents of concern at</p> <p>15 the property are primarily barium, but I also</p> <p>16 talked about EC or salts because that's a</p> <p>17 conversation here.</p> <p>18 In the shallow soils, the EC or salts</p> <p>19 are insignificant and not -- would not affect the</p> <p>20 crawfish growth. And then the barium</p> <p>21 concentrations also are not sufficient to affect</p> <p>22 the crawfish growth or to produce crawfish that</p> <p>23 are unsafe for human consumption.</p> <p>24 So the crawfish that would be produced</p> <p>25 based on this barium concentration would be below</p>

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<p style="text-align: right;">Page 1506</p> <p>1 the Department of Health and Hospitals tissue 2 screening level for consumption of shellfish. 3 And then the crawfish themselves would 4 not be affected by the barium because it's not -- 5 it's not an environmental toxin and not sufficient 6 to cause that. 7 Q. Now, Dr. Connelly, you have experience 8 assessing the effects of oil field constituents on 9 shellfish and crustaceans in Louisiana; correct? 10 A. Right. 11 Q. Tell the panel a little bit about that 12 experience, and particularly your experience at 13 the East White Lake site. 14 A. Okay. So at East White Lake, there was 15 barium in the sediments up to 15,000 milligrams 16 per kilogram dry weight. And the crabs we 17 collected at East White Lake, we collected over 18 300 crabs, they were of the expected size compared 19 to crabs in the Gulf of Mexico and they were of 20 the expected abundance. 21 And then the Louisiana Department of 22 Health and Hospitals collected their own crabs and 23 analyzed those for safety for human consumption 24 and found the crabs to be safe for human 25 consumption.</p>	<p style="text-align: right;">Page 1508</p> <p>1 Q. Now, you also mentioned the Louisiana 2 Department of Health and Hospitals. Tell the 3 panel about the LDH study and what it found 4 separately from the ERM study of crabs. 5 A. They performed their own study, they 6 collected their own crabs, and they did an 7 analysis and looked at the tissue and compared it 8 to state-approved shellfish screening levels and 9 found that the crab -- edible crab meat on the 10 property exposed to barium was significantly lower 11 than the tissue screening level, the safe level 12 for humans, so they said safe for human 13 consumption. 14 Q. Now, in that Louisiana Department of 15 Health document -- well, let me back up. 16 Was Dr. Jim Rodgers also involved in 17 this East White Lake crab study? 18 A. Yes. 19 Q. And Dr. Jim Rodgers is who proposed the 20 barium PCL to Mr. Sills in this case; right? 21 A. For mallards, yes. 22 Q. What did the Louisiana Department of 23 Health have to say about Dr. Rodgers and his 24 methodologies? 25 A. The department -- the Louisiana</p>
<p style="text-align: right;">Page 1507</p> <p>1 So I'm drawing a parallel to the 2 crawfish because crawfish and crabs are both 3 decapod crustaceans, so the same uptake factors 4 would apply. 5 Q. To make sure that this testimony is 6 crystal clear, you have previously analyzed crabs 7 as it relates to barium and crabs and crawfish are 8 comparable species? 9 A. Correct. 10 Q. And you have previously analyzed crabs 11 at a location where the maximum concentration of 12 barium is more than double the maximum 13 concentration of barium on the Henning Management 14 property? 15 A. That's right. The maximum concentration 16 at East White Lake where we collected the crabs 17 was 15,000. There was 15,000 and 18 13,000 milligrams per kilogram. And at Henning, 19 the maximum concentration is 7,000, so I don't 20 predict risk to the crawfish ponds. 21 Q. So you performed an ecological risk 22 assessment. Did this agency and the LDEQ both 23 accept your ecological risk assessment in the East 24 White Lake matter? 25 A. Yes.</p>	<p style="text-align: right;">Page 1509</p> <p>1 Department of Health was not able to use Jim 2 Rodgers' data because of the -- perhaps the 3 analytical methods and some of his other 4 methodology. 5 MR. BRYANT: May I approach, Your Honor? 6 JUDGE PERRAULT: Yes. 7 BY MR. BRYANT: 8 Q. Dr. Connelly, I'm handing you a copy of 9 what's been marked as Exhibit 158.8. Tell the 10 panel what that document is, please. 11 A. This is the Louisiana Department of 12 Health and Hospitals field seafood sampling for 13 East White Lake oil and gas field in Vermilion 14 Parish. 15 Q. And so that's the document that we just 16 discussed where the Louisiana Department of Health 17 evaluated Louisiana crabs and the effects of 18 barium on those crabs? 19 A. Correct. 20 Q. So if the panel had any concern about 21 whether or not the barium concentrations on this 22 property were safe for humans, they could go look 23 at that document? 24 A. Correct. 25 Q. So, Dr. Connelly, based on your</p>

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<p>1 experience and your evaluation of this property, 2 what did you determine about whether the Henning 3 Management property is safe for crawfish? 4 A. It's safe for crawfish. 5 Q. Let's move on to another kind of pond. 6 JUDGE PERRAULT: Do you want to offer exhibit 7 158.8 into evidence? 8 MR. BRYANT: I do, Your Honor. 9 JUDGE PERRAULT: Any objection? 10 MR. KEATING: No objection, Your Honor. 11 JUDGE PERRAULT: No objection, so ordered, 12 shall be admitted. 13 BY MR. BRYANT: 14 Q. You heard Mr. Henning testify on Friday 15 that he may at some point in the future have an 16 interest in building a bass pond on this property; 17 right? 18 A. Yes. 19 Q. Now, we've heard -- I know the panel has 20 had some concern about a potential 25-foot bass 21 pond. 22 Did you hear Mr. Henning say anything 23 about a 25-foot bass pond? 24 A. The 25-foot-deep bass pond? 25 Q. That's right.</p>	<p>1 Q. And what does that document say, and 2 based on your experience, what is the optimal 3 depth of a pond for fish propagation? 4 A. This document recommends that you have 5 to have at least 4 feet of water. That's the 6 minimum. But anything greater than 6 feet, you 7 don't increase the fish production, so up to 8 6 feet. And then deeper than 6 feet, no increase 9 in any type of fish production. 10 MR. BRYANT: Your Honor, we'd offer, file, 11 and introduce Exhibit 60, the management of 12 recreational and farm ponds in Louisiana. 13 JUDGE PERRAULT: Any objection? 14 MR. KEATING: No objection. 15 JUDGE PERRAULT: No objection, so ordered, 16 shall be admitted. 17 BY MR. BRYANT: 18 Q. Dr. Connelly, based on your experience 19 and based on your review of this document, did you 20 evaluate the potential for a bass pond on 21 Mr. Henning's property? 22 A. Yes. 23 Q. Let's first, as we did with crawfish, 24 talk about groundwater. Based on your review of 25 that literature and Mr. Angle's yield calculation,</p>
Page 1511	Page 1513
<p>1 A. I didn't hear Mr. Henning say that, no. 2 Q. What does the literature say about the 3 average depth of recreation sport fishing ponds in 4 Louisiana? 5 A. The average depth of the recreational 6 sport fishing ponds in Louisiana is about 10 feet. 7 MR. BRYANT: And can I approach one last 8 time, Your Honor? 9 JUDGE PERRAULT: Please. 10 A. Deep. 10 feet deep, yeah. 11 BY MR. BRYANT: 12 Q. Dr. Connelly, I've handed you a copy of 13 Exhibit 60. Is this the document that you 14 reviewed to determine the average depth of 15 recreational sport fishing ponds in Louisiana? 16 A. Yes. 17 Q. Again, this isn't some out-of-state 18 study; this is a study by the Louisiana State 19 University Ag Center and the Louisiana Department 20 of Wildlife & Fisheries? 21 A. Correct. 22 Q. And it says that the average depth is 23 about 10 feet? 24 A. Yeah. Deeper than 10 feet would be 25 considered a deep pond, yeah.</p>	<p>1 does the shallow groundwater yield enough water to 2 fill a bass pond? 3 A. No. The shallow groundwater, the amount 4 of time that it would take to fill to 4 feet in 5 the 1-acre pond, which is the suggested smallest 6 size, would take 9 years to fill, not considering 7 the evaporation. 8 Q. So Mr. Henning, I think, mentioned a 9 large bass pond. But even considering a 1-acre 10 bass pond of the very minimum depth, it would take 11 9 years to fill that bass pond? 12 A. Right. 13 Q. Let's talk about soils. 14 Did you evaluate whether site soils 15 would have any effect on using the property for a 16 standard-size bass pond? 17 A. Yes. 18 Q. And what was your -- what conclusion did 19 you reach? 20 A. I reached the conclusion that site soils 21 are protective of fish as well as consumers of 22 fish. 23 Q. And this isn't your first experience 24 with evaluating fish in waters near 25 barium-impacted soils, is it, Dr. Connelly?</p>

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<p>1 A. That's correct.</p> <p>2 Q. Tell the panel about your prior</p> <p>3 experience with, for instance, rapid</p> <p>4 bioassessments that the EPA prescribes in</p> <p>5 determining whether barium has an effect on fish.</p> <p>6 A. I did an EPA rapid bioassessment in</p> <p>7 Terrebonne Parish in oil field canals and</p> <p>8 collected more than 1,000 fish on the property and</p> <p>9 then I collected fish in the nearby reference</p> <p>10 area, which was a wildlife reference area, and</p> <p>11 part of the protocol -- you know, I made the</p> <p>12 comparison and found that the barium in the oil</p> <p>13 field canals up to 12,000 parts per million barium</p> <p>14 did not affect the fish abundance as compared to</p> <p>15 the reference and it also did not affect the</p> <p>16 species that I collected. The trophic structure</p> <p>17 was the same.</p> <p>18 Q. So following an EPA-prescribed protocol,</p> <p>19 you determined there was no adverse effect to fish</p> <p>20 in an area where the maximum barium concentrations</p> <p>21 well exceeded the maximum barium concentrations on</p> <p>22 this property?</p> <p>23 A. Yes. It was 12,000 parts per million</p> <p>24 there, and the max here is 7,000 in dry weight.</p> <p>25 Q. So just to wrap up our discussion of a</p>	<p>1 chloride concentrations, you know, higher than you</p> <p>2 would expect.</p> <p>3 So I don't predict that the chloride</p> <p>4 concentrations here on this property would affect</p> <p>5 the fish.</p> <p>6 Q. So even if Mr. Henning did want to dig a</p> <p>7 25-foot-deep bass pond --</p> <p>8 A. That was only one acre. That would be</p> <p>9 the worst-case scenario.</p> <p>10 Q. Right. A 1-acre, 25-foot-deep bass</p> <p>11 pond, it's your -- based on your assessment, that</p> <p>12 would be safe for the fish?</p> <p>13 A. Correct. And to clarify, I limited what</p> <p>14 we just said to the 1 acre because that's</p> <p>15 literally the worst-case scenario. The bigger you</p> <p>16 get, the greater dilution, the less the issue.</p> <p>17 Q. In fact, there's been surface water</p> <p>18 sampling on this property; correct?</p> <p>19 A. Correct.</p> <p>20 Q. Tell the panel about what ERM's surface</p> <p>21 water sampling at the blowout pond showed about.</p> <p>22 A. The water quality in the blowout pond,</p> <p>23 which is 15 feet deep, is below -- we call it a</p> <p>24 surface water standard. That is, it's -- it's an</p> <p>25 LDEQ aquatic criteria, so it is -- it's</p>
Page 1515	Page 1517
<p>1 standard-sized bass pond, you know, 10 feet or so,</p> <p>2 what are your conclusions about whether that would</p> <p>3 be safe for recreational sport fishing on the</p> <p>4 property?</p> <p>5 A. Yes, that would be safe.</p> <p>6 Q. Now, based on the panel's question and I</p> <p>7 think plaintiffs' suggestions about a 25-foot-deep</p> <p>8 bass pond, did you also evaluate that potential?</p> <p>9 A. Yes.</p> <p>10 Q. Would site soils have any effect on</p> <p>11 using the property for a 25-foot bass pond?</p> <p>12 A. No.</p> <p>13 Q. How did you reach that conclusion?</p> <p>14 A. So the 25-foot depth would not encounter</p> <p>15 groundwater in the limited admission area, so that</p> <p>16 is not an issue. And then there's no barium</p> <p>17 exceedances at depth, so that's not an issue.</p> <p>18 So there are chloride exceedances at</p> <p>19 depth in some areas, but the chloride</p> <p>20 concentrations are not sufficient to impact the</p> <p>21 fish. And I've collected fish in the sinkhole in</p> <p>22 Assumption Parish, which is essentially a brine</p> <p>23 pond, which has higher chloride concentrations</p> <p>24 than what we would expect here. And in that</p> <p>25 sinkhole, we had abundant freshwater fish with the</p>	<p>1 essentially the national ambient water quality</p> <p>2 criteria from EPA but DEQ adopts that. So anyway,</p> <p>3 the constituents are below screening values that</p> <p>4 are protective of aquatic species. So the water</p> <p>5 quality is good in the blowout pond and safe for</p> <p>6 fish and aquatic species.</p> <p>7 Q. And in fact, did you take this picture,</p> <p>8 Dr. Connelly?</p> <p>9 A. I did.</p> <p>10 Q. And you saw various species in the</p> <p>11 vicinity of that area?</p> <p>12 A. Yes. Alligators, the fish-eating birds,</p> <p>13 the wading birds, fish themselves.</p> <p>14 Q. Thank you.</p> <p>15 Now moving on to our last topic, you</p> <p>16 were here during Mr. Sills' and Mr. Miller's</p> <p>17 testimony or you were listening to it; correct?</p> <p>18 A. Yes.</p> <p>19 Q. And so you heard the remediation that</p> <p>20 ICON is proposing on this property?</p> <p>21 A. Correct.</p> <p>22 Q. We talked last week about Step 8 of the</p> <p>23 EPA 8-step process. Do you remember that?</p> <p>24 A. Yes.</p> <p>25 Q. Remind the panel what Step 8 of the EPA</p>

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<p style="text-align: right;">Page 1518</p> <p>1 process calls for.</p> <p>2 A. It's the suggestion that I would make as</p> <p>3 the ecological risk assessor if remediation is</p> <p>4 needed for ecological reasons and then if a</p> <p>5 remediation is proposed for any reason, then I</p> <p>6 would evaluate the risk of that remedy to the</p> <p>7 environment, what destruction would be caused to</p> <p>8 the environment, what is the risk of the remedy.</p> <p>9 Q. And have you evaluated the risk of</p> <p>10 remedy as it relates to ICON's proposed most</p> <p>11 feasible plan?</p> <p>12 A. Yes.</p> <p>13 Q. Tell the panel about the conclusions you</p> <p>14 reached about the risk of ICON's soil most</p> <p>15 feasible plan.</p> <p>16 A. The soil most feasible plan for ICON</p> <p>17 would be, number one, performed in an area where I</p> <p>18 don't find ecological risk and there also is no</p> <p>19 demonstrated human health risk. So it would be a</p> <p>20 remediation that is not called for, and it would</p> <p>21 be destructive of grasslands specifically, also</p> <p>22 wetlands species and also some scrub-shrub and</p> <p>23 some forested area.</p> <p>24 And those grasslands in particular are</p> <p>25 providing habitat for birds, coyotes, deer,</p>	<p style="text-align: right;">Page 1520</p> <p>1 in particular, supports, I think it's 150</p> <p>2 different grass species. And you know that this</p> <p>3 area is a former prairie in Louisiana, so it's the</p> <p>4 grasses that are north of the marsh and south of</p> <p>5 the forest. And there really are not many</p> <p>6 grasslands left, even in the country, especially</p> <p>7 Louisiana. And this property has exceptional</p> <p>8 diversity, especially in grasses.</p> <p>9 And grasses are, as I described before,</p> <p>10 a habitat, especially for birds but also for</p> <p>11 insects and mammals that we've seen on this</p> <p>12 property.</p> <p>13 So your question was, you said it's just</p> <p>14 a fallow field --</p> <p>15 Q. Right.</p> <p>16 A. -- and I would reply to that, I</p> <p>17 disagree. I think it's a vibrant and productive</p> <p>18 habitat. That's how I would describe it.</p> <p>19 Q. And is the habitat also important on</p> <p>20 a -- it's important obviously on a site level. Is</p> <p>21 it also regionally important?</p> <p>22 A. It is. So I think you may -- I think I</p> <p>23 said this when I talked to you previously. I</p> <p>24 can't remember what day that was now.</p> <p>25 But the property is at the confluence of</p>
<p style="text-align: right;">Page 1519</p> <p>1 rabbits, and it would be unnecessarily destructive</p> <p>2 to perform excavation of any size where you have</p> <p>3 to have ingress and egress of trucks, burning of</p> <p>4 fuels. It's not conserving resources and not</p> <p>5 protective of species, not in the best -- being</p> <p>6 good stewards of the environment. I don't propose</p> <p>7 it.</p> <p>8 Q. Let me ask you a few follow-up questions</p> <p>9 to that, Dr. Connelly. I think it was Mr. Keating</p> <p>10 last week that was talking to Mr. Sills, and he</p> <p>11 proposed that because of the aerial extent of the</p> <p>12 remediation is fairly limited in proportion to the</p> <p>13 site size, that the remediation was reasonable.</p> <p>14 How do you respond to that?</p> <p>15 A. I don't think that the size has anything</p> <p>16 to do with whether or not it's reasonable. I</p> <p>17 think it should be warranted by the conditions and</p> <p>18 if it's small, that doesn't change my opinion that</p> <p>19 it's reasonable.</p> <p>20 Q. And you also heard the mention that,</p> <p>21 well, this is in a fallow field, so it doesn't</p> <p>22 matter, it's reasonable. How do you respond to</p> <p>23 that?</p> <p>24 A. Right. So I would want the panel to</p> <p>25 think about the fact that this Henning property,</p>	<p style="text-align: right;">Page 1521</p> <p>1 two migratory bird pathways. The Central Flyway</p> <p>2 and the Mississippi Flyway go right through this</p> <p>3 property, so migratory birds count on it. And we</p> <p>4 saw ducks and geese on the property, and I know</p> <p>5 Mr. Henning plans to have, you know, sponsored</p> <p>6 or -- where you have a guide that takes you</p> <p>7 hunting.</p> <p>8 So it's important for birds in these</p> <p>9 flyways. And then the property is also part of</p> <p>10 what's called -- it's a US EPA national ecological</p> <p>11 framework. It's part of the national ecological</p> <p>12 framework. And part of the property is within</p> <p>13 that framework.</p> <p>14 And it provides corridors for wildlife</p> <p>15 to travel between the property and also like, for</p> <p>16 example, the Lacassine National Wildlife Refuge.</p> <p>17 So it is identified as part of this</p> <p>18 framework that's to protect ecological species.</p> <p>19 And this is also considered an important bird</p> <p>20 area. That's a global designation.</p> <p>21 Q. Let's move to groundwater, Dr. Connelly.</p> <p>22 Tell the panel what your opinion is about ICON's</p> <p>23 proposed most feasible plan for groundwater and</p> <p>24 the risk that that remedy proposes.</p> <p>25 A. So this proposal that covers 85 acres</p>

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<p style="text-align: right;">Page 1522</p> <p>1 and has 471 recovery wells essentially would 2 convert this property from its highest and best 3 use, which is conservation of species and habitat, 4 to sort of an industrial sort of pump and treat 5 center with -- it would essentially eliminate the 6 habitat. And the number one cause for extinction 7 of species on this planet is destruction of 8 habitat, and this would be destruction of habitat, 9 so I'm not supportive of that. 10 Q. Let's talk about the destruction of 11 habitat in a little more detail. 12 Tell the panel what this slide shows and 13 what the effect of ICON's proposed most feasible 14 remedy would be on the habitat in this area. 15 A. This is Area 2, and you can see the ICON 16 wells called out next to the blowout pond. And 17 this area has wetlands species and numerous birds. 18 It's a very diverse area. And this would be 19 destructive to the fish-eating birds that are 20 documented here using the pond and as well as 21 other wildlife that we saw evidence of here. So I 22 am not supportive of this remediation. 23 Q. Same question here, Dr. Connelly. Tell 24 the panel what we're looking at and what the 25 effects of ICON's proposed most feasible plan</p>	<p style="text-align: right;">Page 1524</p> <p>1 scrub-shrub, and you can see the black willow on 2 the right, which is an obligate wetlands species; 3 great egret, which hunts for fish. 4 And then we photographed these mammal 5 tracks. We think they're raccoon, but they may 6 also be river otter, we're not sure. We haven't 7 quite identified that. 8 But destruction of Area 6 by these wells 9 would be specifically destructive to the 10 insectivorous song birds that we saw here. 11 Q. So, Dr. Connelly, just to sum it up, 12 based on ICON's soil most feasible plan and their 13 groundwater most feasible plan, is the risk of 14 that remedy, does it outweigh the need for 15 remediation in those areas? 16 A. No. And I think anytime you propose a 17 remediation, you have to weigh out the risk: You 18 know, will it be valuable enough to cause the kind 19 of destruction that we're talking about. I think 20 the answer is no. 21 Q. So -- and I understand from your 22 testimony last week -- whether remediation may be 23 needed for some other purpose, like to comply with 24 Judge Cain's order, that's not your area; right? 25 A. Correct.</p>
<p style="text-align: right;">Page 1523</p> <p>1 would be in this area. 2 A. This is Areas 4 and 5. These are mostly 3 grasslands and emergent wetlands. And in this 4 area, I think you may remember I told you the 5 grasses are desirable to deer and rabbits that we 6 saw there. And I have a picture down there of the 7 white-tailed deer tracks. 8 We saw a lot of animal tracts on this 9 property. I visited the property three times. 10 And one of the times, it was really dry, and we 11 were able to photograph lots of tracks, deer, and 12 also something we thought was probably coyote, 13 definitely raccoons. We saw feral hog tracks. 14 And then traveling over this area, we 15 saw the greater white-fronted goose. And even 16 though the geese likely land on the watery 17 wetlands, which are the working wetlands, the rice 18 fields, I think they also rely on this area as 19 well, so I think it would be destructive to the 20 migratory birds. 21 Q. And last question on this, Dr. Connelly. 22 Same question, tell the panel what this is and 23 what the effect of ICON's proposed most feasible 24 plan would be in this area. 25 A. This is Area 6, and it is forested with</p>	<p style="text-align: right;">Page 1525</p> <p>1 Q. But it doesn't need to be this 2 remediation? 3 A. Correct. 4 Q. Dr. Connelly, to sum things up, we've 5 heard about bass ponds, we've heard about crawfish 6 ponds, we've heard about cattle-watering. We've 7 heard about a bunch of different uses since you 8 testified last week. 9 A. (Nods head.) 10 Q. Does any of that change your opinion 11 about the ecological state of the Henning 12 Management property? 13 A. No. 14 Q. And remind the panel what conclusions 15 you reached based on your three days of site 16 investigation, your quantitative ecological risk 17 assessment, your quantitative habitat evaluation. 18 Tell the panel what you concluded about this 19 property? 20 A. The property is a mosaic of habitats, 21 grasslands, emergent wetlands, scrub-shrub 22 forests, and also croplands. And I observed 23 diverse wildlife and vegetation that is as 24 expected compared to references, including 25 Wildlife & Fisheries, and per my qualitative risk</p>

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1 assessment calculated per EPA protocol, I did not
 2 find risk to wildlife or their habitats.
 3 And for ecological reasons, I do not
 4 propose remediation is necessary. I do not
 5 propose that it is necessary. Just in case I
 6 wasn't clear.
 7 Q. Thank you, Dr. Connelly.
 8 MR. BRYANT: Your Honor, we'll offer at this
 9 time Chevron's Exhibit 163.3, which is
 10 Dr. Connelly's rebuttal presentation.
 11 JUDGE PERRAULT: All right. Any objection to
 12 Exhibit 163.3?
 13 MR. KEATING: No, Your Honor.
 14 JUDGE PERRAULT: So ordered. It shall be
 15 admitted.
 16 All right. Any surrebuttal?
 17 MR. KEATING: Cross? May I proceed? Thank
 18 you.
 19 CROSS-EXAMINATION
 20 BY MR. KEATING:
 21 Q. Hi, Dr. Connelly.
 22 A. Hello.
 23 Q. I'm going to be brief. I feel like I
 24 just heard your direct again, so I don't want to
 25 do a whole full cross again.

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1 Prior to today, both in your questions
 2 to Mr. Olivier at the conclusion of your testimony
 3 a few days ago and in your deposition and frankly
 4 in your report on page 48, you acknowledged that
 5 you had not addressed the shallow groundwater at
 6 all in connection with your opinions; correct?
 7 A. Correct.
 8 Q. All right. So the first time any of us
 9 heard this or saw this stack of documents was
 10 today; fair?
 11 A. Correct.
 12 Q. All right. You did not address whether
 13 the shallow water-bearing zone had any potential
 14 effect on crops, crawfish, or livestock irrigation
 15 prior to today; fair?
 16 A. There was a rebuttal report from ICON
 17 and some other witnesses, and I was told that we
 18 would make a rebuttal at this time. So I started
 19 thinking about it at that time.
 20 Q. Today's the first time we've heard it?
 21 A. Today's the first time you've heard it,
 22 that's correct.
 23 Q. You understand, Dr. Connelly, that --
 24 and we tried to make this as clear as possible.
 25 I'll try to clear it up one more time.

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1 Henning Management and ICON are not
 2 recommending to this panel that any soil
 3 remediation be done on the property right now at
 4 this time for barium. You understand that; right?
 5 A. I do. I do.
 6 Q. Whether we're talking about barium
 7 sulfide, barium sulfate, or some form of barium
 8 that I can't even think of; right?
 9 A. Yes, that's correct, ICON is not
 10 proposing soil remediation due to barium.
 11 Q. And you understand that the only thing
 12 ICON is proposing relative to barium at this time
 13 is additional risk assessment; correct?
 14 A. I do know they're proposing that, but I
 15 disagree that it's required.
 16 Q. Understand.
 17 A. Yeah.
 18 Q. Whether you agree or disagree that it's
 19 needed or required or feasible or reasonable --
 20 pick a word -- if it were to happen, this
 21 additional assessment for -- risk assessment for
 22 barium, the assessment alone would not have any
 23 adverse ecological effect on the property, would
 24 it?
 25 A. Correct.

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1 Q. So if this panel were to order that,
 2 you're not suggesting that additional assessment
 3 is going to have an adverse ecological effect on
 4 this property?
 5 A. No. Certainly additional assessment
 6 does not have an adverse ecological effect, no.
 7 Q. Okay. There were a lot of photos in
 8 your presentation and certainly attached to your
 9 report as well. And I noticed a lot of photos of
 10 the rice fields both in production and the fallow
 11 portion, I think, which is at H-8 -- or Area 8.
 12 Excuse me. Do you recall that?
 13 A. Uh-huh, yes.
 14 Q. You understand that ICON is not
 15 proposing any soil remediation anywhere near the
 16 rice fields; right?
 17 A. I do.
 18 Q. You understand what -- did you hear
 19 Jason Sills' testimony?
 20 A. Yes.
 21 Q. So you understand the only soil
 22 excavation and remediation either by hauling it
 23 off or amending it with gypsum that's being
 24 recommended is where we have EC above 4 and down
 25 to a max depth of 12 feet. Do you understand

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<p>1 that?</p> <p>2 A. Yes.</p> <p>3 Q. Okay.</p> <p>4 A. I mean, let's put it this way. I</p> <p>5 understand that there's a small soil remediation.</p> <p>6 I know where it is. I couldn't have called out</p> <p>7 the depths for you, and I couldn't have called out</p> <p>8 the reasons, but I understand that the soil</p> <p>9 remediation is small and the groundwater</p> <p>10 remediation is large. I understand that.</p> <p>11 Q. Fair enough.</p> <p>12 MR. KEATING: Scott, can you pull up...</p> <p>13 BY MR. KEATING:</p> <p>14 Q. So do you understand generally that --</p> <p>15 I'll come over here closer to you.</p> <p>16 MR. KEATING: May I, Your Honor?</p> <p>17 JUDGE PERRAULT: Yes, please.</p> <p>18 BY MR. KEATING:</p> <p>19 Q. -- that the only areas where ICON is</p> <p>20 recommending any soil remediation are here in</p> <p>21 Area 5 and here in Area 2 and -- and --</p> <p>22 MR. KEATING: Actually, Scott, can you go to</p> <p>23 the other slide with the -- the 1.2 with</p> <p>24 exceptions? It looks the same, almost, but</p> <p>25 there's some boxes that drop off.</p>	<p>1 that's where they're recommending remediation?</p> <p>2 A. I do understand that, yes.</p> <p>3 Q. Okay. Thanks.</p> <p>4 JUDGE PERRAULT: Do you have a follow-up on</p> <p>5 his...</p> <p>6 MR. KEATING: I haven't asked another</p> <p>7 question. I asked if she understood that's</p> <p>8 the areas.</p> <p>9 JUDGE PERRAULT: Okay. I wanted to know if</p> <p>10 she had any follow-up to your question.</p> <p>11 MR. BRYANT: Your Honor, she's entitled to</p> <p>12 answer the full question. She said, yes, she</p> <p>13 understands, and she has more to that answer.</p> <p>14 MR. KEATING: That's all I asked: Do you</p> <p>15 understand this is where?</p> <p>16 MR. BRYANT: She's entitled to answer the</p> <p>17 question.</p> <p>18 JUDGE PERRAULT: But if she has follow-up to</p> <p>19 that, I'll allow it. If you don't have any,</p> <p>20 you don't have to say anything.</p> <p>21 MR. KEATING: There's not a question on the</p> <p>22 floor. I don't understand --</p> <p>23 THE WITNESS: I mean, quite frankly, I can't</p> <p>24 remember the question. I know I was asked if</p> <p>25 I knew where the soil remediation was, and I</p>
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<p>1 BY MR. KEATING:</p> <p>2 Q. You know what? This is fine. It's just</p> <p>3 a little bit more, to be honest, so I think 0.07</p> <p>4 acres more. But generally speaking, you</p> <p>5 understand that the only areas of the property</p> <p>6 where ICON's recommending any soil remediation are</p> <p>7 where we see these pink boxes in Areas 5 and 4? I</p> <p>8 say that because Area 2 drops off when you put the</p> <p>9 depth exceptions in the actual recommended plan.</p> <p>10 Understand?</p> <p>11 THE WITNESS: Your Honor, can I approach</p> <p>12 the...</p> <p>13 JUDGE PERRAULT: Yes, please.</p> <p>14 A. So this area right here (indicating) is</p> <p>15 forested, so I have definitely an issue with that.</p> <p>16 BY MR. KEATING:</p> <p>17 Q. I haven't asked you a question about</p> <p>18 that yet.</p> <p>19 A. No, I know you didn't. But you --</p> <p>20 Q. You're not answering my question.</p> <p>21 JUDGE PERRAULT: Let him ask you a question.</p> <p>22 BY MR. KEATING:</p> <p>23 Q. Yeah.</p> <p>24 A. Go ahead.</p> <p>25 Q. Yeah. I'm asking you if you understand</p>	<p>1 took issue with where the soil remediation is</p> <p>2 in general.</p> <p>3 MR. KEATING: I didn't ask her if she took</p> <p>4 issue with it.</p> <p>5 JUDGE PERRAULT: All right. You can go ahead</p> <p>6 and have a seat.</p> <p>7 MR. KEATING: I know you take issue with it.</p> <p>8 THE WITNESS: Yes.</p> <p>9 MR. KEATING: I agree that you take issue</p> <p>10 with it.</p> <p>11 JUDGE PERRAULT: Counsel, I wasn't going to</p> <p>12 ask -- I just wanted to know if she had a</p> <p>13 follow-up --</p> <p>14 MR. KEATING: No. Certainly, Your Honor. I</p> <p>15 just didn't know where she was going. I</p> <p>16 didn't ask her that.</p> <p>17 BY MR. KEATING:</p> <p>18 Q. You understand, Dr. Connelly, that of</p> <p>19 this 1200-acre property, give or take, ICON is</p> <p>20 only recommending soil remediation in about</p> <p>21 1.2 acres, or 0.1 percent of the total surface</p> <p>22 area?</p> <p>23 A. Clear. Yes.</p> <p>24 Q. You understand that the court has</p> <p>25 ruled -- the federal court judge has ruled that</p>

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<p style="text-align: right;">Page 1534</p> <p>1 Chevron admitted it contaminated the soil and 2 groundwater on this property? 3 A. I think that falls in the basket of a 4 legal interpretation of what Chevron did or didn't 5 do or what they admitted. Because the limited 6 admission is not something I can interpret. 7 Q. Were you provided a copy of the federal 8 judge's order? 9 A. Yes. 10 Q. Were you instructed to follow it? 11 A. I was given a copy of it and told to 12 read it, which I did do. 13 Q. Did you understand it? 14 A. Not really. I mean, no. I read through 15 it. 16 Q. So sitting here today, you can't say 17 whether your recommendations and testimony in this 18 case does or does not comply with the court's 19 order? 20 MR. BRYANT: Objection, Your Honor. He's 21 calling for a legal conclusion. We went 22 through this same thing with Mr. Carmouche. 23 JUDGE PERRAULT: Just stick to what she did 24 or didn't do and not her opinion of what the 25 judge's order is.</p>	<p style="text-align: right;">Page 1536</p> <p>1 your ruling. If I'm crossing it, I'm not 2 trying to. 3 JUDGE PERRAULT: Do your best. Do your best. 4 I'm not going to get mad at you. 5 BY MR. KEATING: 6 Q. Reading and making sure that you were 7 following the federal court's order was not within 8 the area that you're testifying here today; is 9 that fair? 10 A. The most correct way to phrase what I 11 was tasked with doing is to do an ecological risk 12 assessment of the property. That's the most 13 correct way to phrase my task, which I did do 14 that. 15 Q. That's the complete answer to that 16 question? 17 A. I think so. 18 Q. Okay. You mentioned being a good 19 steward of the environment and not taking action 20 that's going to cause unnecessary risk -- 21 A. Correct. 22 Q. -- to the ecology of the property; 23 right? 24 A. Correct. 25 Q. Do you think Chevron was a good steward</p>
<p style="text-align: right;">Page 1535</p> <p>1 BY MR. KEATING: 2 Q. You understand that you're bound by 3 orders of the court that are handed down in cases 4 like this? 5 MR. BRYANT: Your Honor, he's asking her to 6 testify about she is and isn't bound by. 7 She's not a legal expert. She's an 8 ecological risk assessor and she has opinions 9 on the ecological state of the property. 10 JUDGE PERRAULT: I'm going sustain the 11 argument. Just stick to what she did, what 12 she measured and her conclusions on her 13 measurements and her methodology. 14 MR. KEATING: I understand. 15 JUDGE PERRAULT: And her qualifications. 16 BY MR. KEATING: 17 Q. So that was outside your area? 18 A. If I remember the question -- 19 JUDGE PERRAULT: Do you want him to repeat 20 the question? 21 THE WITNESS: Yeah, repeat the question. 22 BY MR. KEATING: 23 Q. And I'm not asking you to interpret the 24 judge's order. 25 MR. KEATING: And, Your Honor, I understand</p>	<p style="text-align: right;">Page 1537</p> <p>1 of the environment when they utilized unlined 2 earthen pits on this property? 3 MR. BRYANT: Objection, Your Honor. He's 4 asking for operational issues. She's not -- 5 she has no knowledge of Chevron operations. 6 She's an ecological risk assessor assessing 7 the current state of the property. 8 JUDGE PERRAULT: I'll sustain that. Just ask 9 what she found and what she studied, not what 10 Chevron's operations were. 11 MR. KEATING: Well, Your Honor, she's saying 12 that ICON is proposing to do things that are 13 going to be not good stewardship of the 14 environment. And the reason we're here 15 entirely today is because Chevron wasn't a 16 good steward of the environment, which they 17 admitted. 18 JUDGE PERRAULT: And that's in evidence. But 19 her opinion of what Chevron did on the site, 20 I don't know that that helps your case. 21 MR. KEATING: I think what she's saying is -- 22 and I'm not trying to put words in your 23 mouth, tell me if I'm wrong. She doesn't 24 think it would be good stewardship of the 25 environment to do the remediation that ICON</p>

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<p>1 is proposing.</p> <p>2 JUDGE PERRAULT: Well, ask about the</p> <p>3 remediation, not what Chevron's processes</p> <p>4 were.</p> <p>5 MR. KEATING: I'm comparing the stewardship</p> <p>6 analysis that she's applying to ICON to</p> <p>7 Chevron. It's a fair credibility</p> <p>8 cross-examination.</p> <p>9 JUDGE PERRAULT: I get what you're doing.</p> <p>10 But the Chevron stuff, that's not -- she's</p> <p>11 measuring what's in the ground and what</p> <p>12 happened to the ground. And if you want to</p> <p>13 ask her what you're proposing to do, what she</p> <p>14 thinks of that, that will be great.</p> <p>15 MR. BRYANT: Thank you, Your Honor.</p> <p>16 MR. KEATING: If I'm limited in that fashion,</p> <p>17 I don't have any further questions.</p> <p>18 JUDGE PERRAULT: Okay. But if you object to</p> <p>19 what I've done, we can note that on the</p> <p>20 record.</p> <p>21 MR. KEATING: I don't want to get into an</p> <p>22 argument with Your Honor. That's not my</p> <p>23 intention.</p> <p>24 JUDGE PERRAULT: No, no. I just want it</p> <p>25 clear. And if y'all have an objection, put</p>	<p>1 A. (Nods head.)</p> <p>2 Q. I want to give you a chance to tell the</p> <p>3 panel why plaintiffs' remediation, be it limited</p> <p>4 in scope or not, aerially is unreasonable.</p> <p>5 A. I was really just pointing out that, you</p> <p>6 know, one of the remediation boxes in particular</p> <p>7 is in a forested area. I can't imagine what the</p> <p>8 issue is there. And then the other remediation</p> <p>9 boxes are within those grasslands that I talked to</p> <p>10 you about.</p> <p>11 And we already had the slide, so I</p> <p>12 showed the panel. But I just was calling out that</p> <p>13 although it's limited in size, if it's unneeded,</p> <p>14 it's still destructive.</p> <p>15 Q. Dr. Connelly, you were asked about the</p> <p>16 Court's order, and I think you already gave this</p> <p>17 testimony, but just to make sure the record's</p> <p>18 perfectly clear, you were not asked -- whether</p> <p>19 remediation is needed for some other purpose,</p> <p>20 including compliance with the Court's order is not</p> <p>21 within your ambit; is that right?</p> <p>22 A. That's right.</p> <p>23 Q. What you're testifying is that even if</p> <p>24 remediation is needed for some reason, it doesn't</p> <p>25 need to be ICON's plan?</p>
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<p>1 it in there.</p> <p>2 MR. KEATING: I do disagree, but I respect</p> <p>3 the Court's ruling. And I'll rest with that.</p> <p>4 JUDGE PERRAULT: All right. Do you have any</p> <p>5 follow-up?</p> <p>6 MR. BRYANT: Very briefly, Your Honor.</p> <p>7 REDIRECT EXAMINATION</p> <p>8 BY MR. BRYANT:</p> <p>9 Q. Dr. Connelly, plaintiffs have taken the</p> <p>10 position that further evaluation for barium is</p> <p>11 needed on this property. Is that your</p> <p>12 understanding?</p> <p>13 A. Yes.</p> <p>14 Q. Have you done that further evaluation?</p> <p>15 A. Yes.</p> <p>16 Q. What does your further evaluation show?</p> <p>17 A. That barium is not an ecological toxin</p> <p>18 on this property or really anywhere in the United</p> <p>19 States right now.</p> <p>20 Q. Is further evaluation of that needed?</p> <p>21 A. No.</p> <p>22 Q. Dr. Connelly, you were asked if you took</p> <p>23 issue with where the remediation -- or where the</p> <p>24 remediation is occurring, and you wanted to tell</p> <p>25 the panel why you took issue with that.</p>	<p>1 A. I agree with that, yes.</p> <p>2 MR. BRYANT: No further questions. Thank</p> <p>3 you.</p> <p>4 JUDGE PERRAULT: Does the panel have any</p> <p>5 questions?</p> <p>6 PANELIST OLIVIER: No questions from the</p> <p>7 panel.</p> <p>8 JUDGE PERRAULT: Thank you very much.</p> <p>9 THE WITNESS: Thank you.</p> <p>10 It's 12:02. Do y'all want to take a</p> <p>11 lunch break. We'll take an hour break, so</p> <p>12 let's say we'll come back at 1:03.</p> <p>13 (Lunch recess taken at 12:03 p.m. Back on</p> <p>14 record at 1:07 p.m.)</p> <p>15 JUDGE PERRAULT: We're back on the record</p> <p>16 after lunch. It's now 1:07. Today's date is</p> <p>17 February 13th. I'm Charles Perrault. We're</p> <p>18 doing the -- Chevron's rebuttal.</p> <p>19 And please call your next witness.</p> <p>20 MR. GREGOIRE: Chevron calls David Angle.</p> <p>21 (Witness is sworn.)</p> <p>22 MR. GREGOIRE: Judge, if I may approach, we</p> <p>23 have a slide presentation for Mr. Angle which</p> <p>24 was e-mailed to everyone but we're providing</p> <p>25 copies.</p>

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1 Ahead of time, I would like to file and
 2 offer as Exhibit 163.4 Mr. Angle's
 3 presentation.
 4 DAVID ANGLE,
 5 having been first duly sworn, was examined and
 6 testified as follows:
 7 DIRECT EXAMINATION
 8 BY MR. GREGOIRE:
 9 Q. Good afternoon, Mr. Angle.
 10 A. Good afternoon. Good afternoon,
 11 everybody.
 12 Q. You're aware of the fact that Judge
 13 Perrault qualified you last week as an expert in
 14 the areas of site assessment, remediation of
 15 environmental media, geology, hydrogeology, soil
 16 and groundwater fate and transport, and the
 17 application of regulatory standards and
 18 procedures?
 19 A. That's correct.
 20 Q. Okay. So you testified last week; is
 21 that right, Mr. Angle?
 22 A. I did. For a long time.
 23 Q. And you have heard the testimony not
 24 only of Chevron's expert witnesses but also the
 25 witnesses of Henning Management; is that right?

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1 A. Yes. I listened to all of them.
 2 Q. Have any of your opinions changed since
 3 you testified before this panel last week?
 4 A. No.
 5 Q. Okay. I want to address some of the key
 6 points which you -- which you arrived at in not
 7 only reviewing the respective most feasible plans;
 8 that is the Chevron plan and that is the plan of
 9 ICON, but also based upon your listening to all of
 10 the witness testimony. Okay?
 11 And you have -- if you hadn't been here
 12 physically present, you have heard all of the
 13 witness testimony remotely as well; is that right?
 14 A. Yes. That's correct.
 15 Q. So tell the panel some of your key
 16 takeaways or key points that you've arrived at
 17 based upon your review of the plans and the
 18 testimony of the witnesses.
 19 A. Okay. We'll start with groundwater
 20 here. Groundwater out here is Class 3 based on
 21 our analysis. It's naturally poor quality, you've
 22 probably heard, and it cannot be restored to a
 23 potable state. So that's my groundwater opinion
 24 relative to the classification.
 25 Number two, shallow groundwater's not

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1 connected to the Chicot. I know you've heard some
 2 back and forth on that. I'm going to show you a
 3 little bit more evidence for that.
 4 Monitored natural attenuation for
 5 benzene. That's our plan to conduct that in the
 6 vicinity of the blowout pond. That's groundwater.
 7 Q. And for soil, what are your two main
 8 points, takeaways?
 9 A. No remediation for soil. There are no
 10 29-B exceedances in the root zone zero to 1 foot.
 11 If you remember, I did point out three locations
 12 with ESP and SAR exceedances between the 1- and
 13 3-foot column.
 14 And I also want you to remember, on the
 15 soil side, there are no metals or hydrocarbon
 16 exceedances, oil and grease, to any depth for
 17 29-B.
 18 Q. But you do have an alternate remediation
 19 proposal that you testified about last week; is
 20 that right?
 21 A. Correct.
 22 Q. And you'll sum that up again later in
 23 your presentation; is that correct?
 24 A. That's correct.
 25 Q. So you testified last week about the

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1 most feasible plan, which you defined as being the
 2 most reasonable; is that right?
 3 A. Yeah, that's right.
 4 Q. And it's the most reasonable to protect
 5 human health and the environment?
 6 A. That's correct. Based on Ms. Levert's
 7 analysis and Dr. Connelly's analysis.
 8 Q. So describe to this panel -- or tell
 9 this panel what your generalized opinion is about
 10 ICON's plan and then respectively the Chevron most
 11 feasible plan.
 12 A. Yeah. The first item here that ICON --
 13 and I think what I've heard through my listening
 14 to their testimony is their plan with exceptions
 15 does not -- you know, has not provided an
 16 alternate statute or regulation in support.
 17 And then based on our analysis -- and
 18 then I'll go through some of it. It's not the
 19 most reasonable or the most feasible plan.
 20 Q. And what is your opinion about the
 21 Chevron plan?
 22 A. Well, the Chevron plan is based on
 23 Statewide Order 29-B, obviously it's based on
 24 RECAP, it's based on EPA. A couple of the other
 25 regulations that I talked about, Sanitary code,

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<p style="text-align: right;">Page 1546</p> <p>1 radionuclides rule, so it's a regulatory-based 2 program, which is relying on the regulations. In 3 my experience based on previous LDNR hearings, the 4 agency looks to whatever regulation may be 5 applicable. That's what we did. 6 Q. And did the testimony of ICON, 7 particularly Greg Miller and Jason Sills, confirm 8 your understanding that ICON did not apply RECAP 9 to any analysis and particularly its exception 10 plan? 11 A. That's correct. 12 Q. You also testified quite a bit about 13 Appendices B and F of RECAP; is that right? 14 A. I did. 15 Q. And we do not want to belabor that 16 point, but if you can just summarize for the panel 17 the relevance of Appendixes B and F to the 18 determination of the classification of the 19 groundwater? 20 A. Yeah. The relevance here -- and you've 21 heard testimony not only from me but Mr. Miller 22 and Dr. Schuhmann about aquifer testing and when 23 you have multiple wells or slug tests you should 24 consider those. 25 And so Appendix B and Appendix F give us</p>	<p style="text-align: right;">Page 1548</p> <p>1 sustainable yield of an aquifer? 2 A. You mean that final draft from '85? 3 Q. Yes. 4 A. Yes, I've seen it. 5 Q. That publication, was it ever placed in 6 final format by EPA? 7 A. Not that particular publication. 8 Q. Okay. And so as we all know, in 9 Louisiana, RECAP provides us with guidance and 10 rules regarding how to classify an aquifer in 11 Louisiana; is that right? 12 A. Correct. And that was all determined by 13 the development of RECAP by DEQ and promulgated by 14 DEQ. 15 Q. Let's talk next about ERM's groundwater 16 classification and so -- compared to ICON's. And 17 that's what you're going to discuss, I think, in 18 the next couple slides. 19 Both ERM and ICON slug tested 17 wells; 20 is that right? 21 A. That's correct. ICON did 5, we did 12. 22 Q. So if you can explain to the panel what 23 these series of charts and graphs reflect and its 24 meaning to you. 25 A. Okay.</p>
<p style="text-align: right;">Page 1547</p> <p>1 guidance and guidance that I followed in terms of 2 classifying the groundwater. In particular on the 3 bottom, Appendix F, when you have a number of 4 hydraulic conductivity results, you calculate a 5 geometric mean. We'll revisit that a little bit. 6 But that's what we used to do our classification. 7 Q. And as a summation, what should the 8 maximum sustainable yield of the groundwater be in 9 order for it to be classified as a 2C aquifer? 10 A. It needs to be above 800 gallons per 11 day. 12 Q. And you'll talk about this later, but 13 you're confident that slug testing of the 14 groundwater, particularly the shallow groundwater 15 at this property, provide an accurate means to 16 determine the maximum sustainable yield of that 17 water at the Henning site? 18 A. Yes, I'm confident. And I heard that 19 testimony from Mr. Miller as well. I think we're 20 in agreement on a few things, and that's one of 21 them, that we have adequate number of slug tests 22 to make a classification determination. 23 Q. You saw, and you've seen it before, the 24 EPA draft document from 1985 that Mr. Miller 25 relied upon partly for his opinion about maximum</p>	<p style="text-align: right;">Page 1549</p> <p>1 THE WITNESS: If you don't mind, I'll 2 probably stand up for the next few slides. 3 A. There's a Table 1 in our remediation 4 plan that lays all this -- these two pages out, 5 but we wanted to bring your attention to a couple 6 things. 7 Number one, we used 17 wells in our 8 classification. The geometric mean, you probably 9 heard me talk about previously, was a little bit 10 under 400 gallons a day, so about half of the 11 Class 3 standard. And we evaluated the geometric 12 mean of that calculation. 13 Now, I heard some criticism that I did 14 it wrong, I didn't follow RECAP. So I'm going to 15 tell the panel what we did, and we did it, 16 obviously, I think the way that I heard I should 17 have done it. And I'm going to tell you that, 18 too. 19 So our calculation said 398 gallons a 20 day. And I think the questioning was you're 21 supposed to use a geometric mean of the hydraulic 22 conductivity, so we said, okay, we'll do that. 23 So we went back and calculated the 24 geometric mean of the hydraulic conductivity, 25 which is right here. Geometric mean of the HC and</p>

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<p style="text-align: right;">Page 1550</p> <p>1 B, we're about 5 GPD difference. So it's -- I 2 probably said that at that time. There's really 3 no material difference. That's, in my mind, the 4 same number. So doing it both ways, it's clearly 5 Class 3. 6 BY MR. GREGOIRE: 7 Q. And the maximum sustainable yield, as 8 you determined it and as you determined it on 9 countless occasions at other properties, was 10 actually higher, albeit 5 gallons per day, but 11 higher than the maximum sustainable yield in the 12 manner that you applied it as suggested by ICON; 13 is that right? 14 A. That's correct. 15 Q. So where was their agreement among the 16 experts? 17 A. And I think this is important. That's 18 why, you know, we put these bullets on the slide. 19 You know, I listened to that testimony, and I 20 didn't hear any disagreement on -- I think both 21 sides agree there's one water-bearing zone. It's 22 hydrogeologically connected. 23 Both sides, I believe, agree that there 24 are sufficient slug tests to classify the aquifer. 25 If you remember, they're fairly widely distributed</p>	<p style="text-align: right;">Page 1552</p> <p>1 in the actual litigation before it produced its 2 most feasible plan? 3 A. Two. 4 Q. One report was produced in September of 5 2021; is that right? 6 A. That's correct. 7 Q. And Mr. Carmouche asked, I believe, 8 Mr. Miller questions about that, and I think the 9 question was, "Well, all sampling hadn't been 10 conducted at the property at that time"; is that 11 right? 12 A. That's correct. 13 Q. ICON had an opportunity to perform or at 14 least draft and produce another report in April of 15 2022; is that right? 16 A. The rebuttal report, yes. 17 Q. And that report responded to ERM's 18 report that it filed and produced in the 19 litigation; is that right? 20 A. That's correct. 21 Q. And that rebuttal report occurred at a 22 time -- or it was produced at a time when the 23 sampling had ended, all the sampling had been 24 conducted on the property; is that right? 25 A. Right. Both parties had gathered the</p>
<p style="text-align: right;">Page 1551</p> <p>1 around the areas of investigation. And it's 2 important to analyze multiple slug tests when you 3 have multiple slug tests. Don't just look to one 4 slug test. 5 And I think this -- we just put this up 6 here. We do have agreement from Dr. Schuhmann 7 that slug testing clearly demonstrates an 8 inhomogenous groundwater unit. Well, what does 9 that mean? It's not one continuous sand layer 10 that underlies the whole property, as you probably 11 saw, the variability in thickness and extent of 12 the shallow water-bearing zone. Dr. Schuhmann 13 agrees. 14 He also agreed that you can't evaluate 15 sitewide groundwater based on a single point, 16 especially a site of this magnitude. I mean, 17 that's hugely important. A site this big, two 18 square miles, one point doesn't do a lot for you 19 with the variability in that shallow water-bearing 20 zone. 21 Q. So let's move next to your analysis of 22 the geometric mean that ICON used. And before we 23 get into that analysis, I think it's important to 24 note for background -- and I think your testimony 25 is such that -- how many reports did ICON produce</p>	<p style="text-align: right;">Page 1553</p> <p>1 data that they needed to to do their evaluation. 2 Q. And ICON, in both of those reports, 3 concluded that the shallow groundwater acts as one 4 unit; is that right? 5 A. That's correct. 6 Q. And ICON also, when it performed slug 7 testing, did not separate out the slug testing by 8 an A and B bed; is that right? 9 A. Correct. You've heard some testimony 10 from, I think, Mr. Miller on an A and a B bed. 11 But back at that time, there was just one 12 hydrostatic unit. There still is just one 13 hydrostatic unit. That hadn't changed. 14 Q. So the first time that you heard about 15 an A and B bed was in ICON's proposed feasible 16 plan which was produced in this case last fall; is 17 that right? 18 A. Yeah, that's correct. 19 Q. So describe to the panel what analysis 20 you performed in these two charts and then where 21 you arrived at your total gallon per day number. 22 A. Sure. I think the other day these two 23 tables here were presented with some numbers 24 underneath them, which was a geometric mean 25 calculation yield of the A bed individually -- you</p>

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1 probably remember, the A bed, I think the
 2 calculation was a little over 100 gallons per day.
 3 And the B bed individually is -- I think it was
 4 900 or whatever.
 5 And so -- but keep in mind it's one
 6 hydrogeologic unit, so when you classify
 7 groundwater, if you've got one unit, you do one
 8 classification. When you do one classification,
 9 you use all of the data from the water-bearing
 10 zone.
 11 So we simply, on this slide, took all of
 12 these results here in this column, same with this
 13 column over here, calculated a geometric mean.
 14 And again, this was Mr. Miller's table, I believe.
 15 And we get 330 gallons per day. It's very close
 16 to the number we had calculated ourselves. I just
 17 took Mr. Miller's breakdown of the A and B and
 18 combined them in one aquifer analysis just like
 19 they should be based on one water-bearing zone.
 20 Q. So had Mr. Miller performed his analysis
 21 of the slug testing data as called for under
 22 Appendices B and F and as you provide it to this
 23 panel through the most feasible plan, this is what
 24 the gallon per day would be under his evaluation,
 25 or should be?

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1 A. That's correct.
 2 Q. Explain to the panel why this number,
 3 the 330 gallon per day maximum sustainable yield
 4 is so lower, it's much lower than the maximum
 5 sustainable yield that Mr. Miller arrived at and
 6 that he testified about last week.
 7 A. Well, it's simply -- it's pretty basic,
 8 quite honestly. I just white out A and B bed and
 9 call this one aquifer, because that's how both
 10 parties have agreed on it.
 11 So you don't separate it out for
 12 classification purposes. You analyze it together.
 13 And so it's really one water-bearing unit if
 14 you -- you know, you probably remember the
 15 testimony, between 20 and 50 feet is where that
 16 water-bearing zone occurs. And I think we have
 17 strong agreement on both parties on that.
 18 Q. So last week, there were questions about
 19 the potential of pump testing the shallow aquifer.
 20 Do you remember that?
 21 A. I do.
 22 Q. And there was also some testimony about
 23 it as well, I believe particularly by Mr. Miller.
 24 Do you remember that?
 25 A. I do.

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1 Q. And so let me ask you this. Are you
 2 opposed to pump testing at the appropriate site
 3 setting?
 4 A. No, not at all. I am not opposed to
 5 pump testing. Pump testing's a tool in our
 6 toolbox that we'll use when it's necessary.
 7 There's no question a pump test is a viable method
 8 to classify groundwater.
 9 Q. So explain to this panel why pump
 10 testing is not appropriate and why it would not
 11 lead to a reliable result regarding the maximum
 12 sustainable yield of this shallow aquifer.
 13 A. I think probably the most fundamental
 14 thing -- think of this. It's the scale of the
 15 property. If this was a corner gas station site
 16 and we wanted to evaluate the groundwater yield
 17 underneath that, one pump test would do it because
 18 you're fairly confident the geology doesn't vary
 19 that much over a small area.
 20 But we're dealing with a site here that
 21 is 2 square miles. ICON's remediation area alone
 22 is 85 acres. And I think you probably heard
 23 testimony on the variability of the geology. So
 24 let's just say we chose a location out here for a
 25 pump test. The first line here, when you do a

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1 pump test, you run it for 24 hours, typically up
 2 to 72 hours, depending on the aquifer. And you'll
 3 see influence in surrounding observation wells,
 4 you know, typically on a shallow zone like this
 5 not very far out.
 6 And so you're effectively testing the
 7 hydraulic conductivity of that area. It's wider
 8 than a slug test, but it clearly doesn't test the
 9 85 acres.
 10 And so in this case, you know, we just
 11 showed -- this is still an active -- well, it's
 12 listed as shut-in future utility. This is a well
 13 out here, so if you could just draw a radius
 14 around there maybe 50 feet out, that's the area
 15 that you're evaluating the conductivity underneath
 16 the property.
 17 And as you remember, there's variable
 18 geology underneath the property. Sometimes the
 19 bed -- the water-bearing zone is nonexistent.
 20 Other places, it's thin; some places, it's thick.
 21 So the only way to evaluate that
 22 variability is to look more site-wide. And slug
 23 tests give you the ability to do that more
 24 site-wide easier than a pump test.
 25 Q. And as we have here, you have depicted

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<p style="text-align: right;">Page 1558</p> <p>1 graphically why pump testing at this site setting 2 at the Henning property would not produce reliable 3 and accurate results about aquifer 4 classifications; is that right? 5 A. Yeah. And I think -- what -- what we 6 tried to get across here is that if I just do one 7 pump test -- let's say at this location we didn't 8 find a water-bearing zone. Pump test will 9 probably just fail, flat out won't be able to pump 10 water. But if I do one here where we encounter a 11 fairly thick portion, we're going to generate a 12 lot of water, we'll probably get a yield arguably 13 above 800 or whatever. 14 So one pump test, depending on the 15 location you choose -- now, you know, there's -- I 16 didn't put a horizontal scale out here, but you 17 can imagine how large this property is. You can 18 imagine what you might get. Well, what does a 19 slug test enable you to do? It enables you to 20 test a lot more of these so you catch that 21 variability that you wouldn't if you just did one 22 pump test. 23 Contrast with the bottom, if we had a 24 continuous sand underneath that whole property, 25 I'd say one pump test would solve our fight. We</p>	<p style="text-align: right;">Page 1560</p> <p>1 are appropriate for groundwater classification at 2 the Henning site. 3 A. Sure. Go to the first bullet here. 4 Okay. 5 It's obviously a RECAP-approved 6 methodology. If you look at Appendix F, it's 7 RECAP approved. I mean it's been standard 8 practice for many decades. Slug tests are kind of 9 the go-to tool. In particular, they're widely 10 used on small sites. They're quick. And you can 11 do multiple tests over broad areas. 12 They help us -- I think this fourth 13 point -- or fifth point is really important. They 14 help us understand that horizontal variability of 15 water-bearing zones that one pump test in one 16 location is not going to help you with. So that's 17 why at this site you can see the red dots. 18 We did 17 tests and they cover quite a 19 large area. And this scale down there at the 20 bottom was 1,000 feet. The little yellow dot 21 there, you might -- it's kind of hard to see. 22 That's a 50-foot radius. So you can -- as you 23 feel the scale here, one pump test with a 50-foot 24 radius there surely doesn't characterize areas 25 that are, you know, over 1,000 feet away with</p>
<p style="text-align: right;">Page 1559</p> <p>1 have an agreement there's one water-bearing zone, 2 we put in a pumping well, sand's fairly uniform 3 underneath the whole property, we pump it, do our 4 test, whatever the results are, that's it. 5 We don't have that. We have this 6 (indicating). So one pump test will give us 7 information locally, but we still have to rely on 8 the information that we have wide-scale, the other 9 slug tests, the wells that don't go -- that go 10 dry, the differences in geology. 11 I think that's where what we did is 12 probably better -- it's a better way to evaluate a 13 large property like this, not just one pump test. 14 Q. Mr. Angle, how many slug tests have you 15 performed in your career in Louisiana aquifers, 16 whether shallow aquifers or Class 2 or Class 1 17 aquifers? 18 A. Dozens. I mean, we pretty much have 19 this issue on every one of these sites where we do 20 typically from a handful up to, in this case, 21 almost 20 slug tests. And the reason why we do so 22 many is to try to be as inclusive as possible of 23 areas of the site where we need to evaluate, not 24 just, you know, choose one location. 25 Q. So explain to this panel why slug tests</p>	<p style="text-align: right;">Page 1561</p> <p>1 different geology. 2 So that's kind of a limitation of the 3 pump test. That's why, on a big site like this, 4 you go more the slug test route to characterize 5 that variability. 6 Q. So other than your application of 7 Appendices B and F of RECAP to determine maximum 8 sustainable yield, there are lines of evidence 9 that you believe are significant in connection 10 with the existing conditions at the site and slug 11 tests that were performed there; is that right? 12 A. That's right. And I think one of the 13 panel members asked me, you know, do you have any 14 information on sustainability? Well, sustainable 15 yield of a well, this is it. And if you can 16 imagine at these locations where small-diameter 17 monitoring wells would go dry, if we tried to do a 18 pump test at those location, I can tell you it 19 would fail. 20 And so the only way to take into that 21 account is to test the, kind of, site-wide geology 22 through multiple slug tests and then, kind of as 23 an additional supporting line of evidence, look at 24 things like this that tell you what variability 25 you really see out there from a geology</p>

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<p style="text-align: right;">Page 1562</p> <p>1 standpoint. Some of these locations, as you 2 probably remember, didn't even have a 3 water-bearing zone where we'd expect it, so you 4 can't even test it, either a slug test or a pump 5 test. 6 Q. So you segue back to Mr. Schuhmann's 7 opinion about the shallow zone as not being 8 homogenous. What does that mean to you? 9 A. Well, it's the same thing you saw 10 probably on the cross-section earlier is that it's 11 variable. And with a large site like this, it's 12 not unexpected. I would say of all the sites that 13 I work in in the state, that's typical. This 14 variability in these shallow water-bearing zones 15 is great from grain size to thickness to vertical 16 and laterally extent. It's really an inhomogenous 17 zone underneath this property as well as a lot of 18 properties with these shallow water-bearing zones. 19 I don't know if it's fortunate or 20 unfortunate, we don't see those uniform sands like 21 on that bottom cross-section I showed. We 22 typically don't see that unless you go into the 23 Chicot. 24 Q. You heard Mr. Miller testify last week 25 that the constituents in the soil may not be</p>	<p style="text-align: right;">Page 1564</p> <p>1 we see localized impacts in these shallow 2 water-bearing zones, and the same way with the 3 soil. There's movement but there's not tremendous 4 movement. 5 Dr. Schuhmann says stuff just doesn't 6 move much out here, it's almost just moving by 7 diffusion. And generally, that's what we're 8 dealing with. 9 I think Ms. Levert talked about this a 10 little bit, that the testing results just don't 11 support these calculations that say things are, 12 you know, moving down -- like barium's a great 13 example. You know, barium's going down. It's 14 just -- the data we have don't support that. 15 I think the panel has seen, and I 16 encourage you to look at the boring logs in the 17 cross-sections, that there is a thick confining 18 layer over the Chicot, and it's protective of the 19 Chicot, which is the only USDW underneath the 20 property. 21 And then finally, we have laboratory 22 vertical permeability data that we compared to the 23 29-B standard. I'm going to show you a couple 24 horizontal cross-sections. I know you guys had 25 asked some questions not only of me, some of the</p>
<p style="text-align: right;">Page 1563</p> <p>1 protective of the Chicot Aquifer. Do you remember 2 that? 3 A. Yes. 4 Q. Do you agree with him? 5 A. No, I do not. 6 Q. And explain to the panel why you 7 disagree. 8 A. Well, we have a whole series of lines of 9 evidence, and we've got them listed on this slide. 10 The first one is -- and I think the panel has seen 11 it -- the electrical conductivity probes, the 12 boring logs, and the lab data. 13 We have residual EC concentrations from 14 the lab at depth that demonstrate we're within the 15 range of 29-B. 16 The clay soils act like a sponge. I 17 mean, this clay is very low permeability and so 18 when salt gets in it, it tends to not want to move 19 very much. The residual soil and groundwater 20 conditions have been out here for 80 years. 21 I mean, when you think about it, when 22 things happen in different parts of the site -- 23 it's been a long time and typically what we see -- 24 and I can tell you this because, you know, this 25 isn't the first site like this, is that typically</p>	<p style="text-align: right;">Page 1565</p> <p>1 other witnesses, and I think these will help show 2 some of these in graphical form. 3 Q. Mr. Angle, you heard testimony last week 4 about -- particularly from Mr. Miller about the 5 SPLP versus the chloride leachate testing method? 6 A. I did. 7 Q. And in his opinion, SPLP does not 8 accurately depict the extent of the soil 9 leachability and soil to groundwater protection in 10 connection with chlorides; is that right? 11 A. That's correct. 12 Q. And so this graph -- or series of graphs 13 and testing or sampling values, what does this 14 reflect in your opinion? 15 A. We -- and I think this is primarily to 16 be responsive of some really good questions from 17 the panel on SPLP and, you know, we've got 18 multiple lines of data. And if you don't -- it's 19 hard to look at something like this in a report, 20 so we prepared this to kind of present it all 21 together. 22 The EC probe log data -- and this is 23 H-12, Area 2, if you remember. A strong signature 24 here, indicative of we've got a salty zone. And 25 so we plotted the lab EC so the panel can see.</p>

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1 Obviously at this zone, we have fairly EC, and we
 2 talked about that.
 3 And then here's the graphic boring log
 4 with the screen interval. That's the railroad
 5 tracks here, the sand, and then where SPLP
 6 chloride and leachate chloride samples were
 7 collected.
 8 And you can see they're right at the top
 9 of the shallow water-bearing zone. Ms. Levert
 10 talked about that literally, so right at the
 11 screen interval.
 12 Finally, groundwater chloride at this
 13 one, this is our location with the highest
 14 chloride concentration, you know, 40 to --
 15 basically 40-, 45,000.
 16 One thing I didn't point out was the
 17 bottom here, which is where it's really important
 18 to me to look at always on these investigations,
 19 what do we have vertically? We have an EC right
 20 at 29-B standards. We have a vertical
 21 permeability. This is a laboratory test, we take
 22 soil core and send it to a geotech lab. Three
 23 times 10 to the minus 8 meets 29-B standard.
 24 We have SPLP chloride down here at 76,
 25 78, 42.6 feet. But what we also have is another

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1 50 feet of clay assuming that the top of the
 2 Chicot at that location's only 120. That was, I
 3 think, the shallowest location that we found a
 4 well within a 1-mile radius. There's clearly
 5 places at the top of the Chicot is deeper than
 6 this one, but we used that kind of as an example.
 7 Q. And you performed the same analysis at
 8 H-16 which is the area where ICON proposes to dig
 9 an 18-foot trench; is that right?
 10 A. Correct. And same -- same thing, EC
 11 probe, not as strong signature and it's shallower.
 12 And you can, you know, just train your eyes on
 13 the -- some of the EC data.
 14 I will point out just as an explanation
 15 of why we see some EC differences. We resampled
 16 this 14 to 16 interval here that had EC originally
 17 of 16 to 20. We went back and got 10 or less.
 18 And so what it tells you is that there's some
 19 variability in the subsurface relative to EC.
 20 And then, of course, train your eyes
 21 down here to the bottom, which is always most
 22 important to us. EC now down below 29-B. The
 23 conductivity probe log comes back here
 24 (indicating), which means we're vertically
 25 delineated.

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1 Well screen here, SPLP again and
 2 leachate chloride right at that screened interval,
 3 so it's kind of, you know, saturated. SPLP below
 4 35.5. And then there's the groundwater chloride,
 5 about 13,000.
 6 So I think these are good tools to look
 7 at to evaluate the lines of evidence that we are
 8 presenting to the panel to show that we think the
 9 Chicot is protective of the data that have been
 10 gathered in these two locations that are, quite
 11 honestly, the saltiest locations on the property.
 12 Q. You recall Dr. Levert and her testimony
 13 earlier that saturation of water was observed at
 14 H-16? Do you remember that?
 15 A. Yes.
 16 Q. And what significance does that have to
 17 you, Mr. Angle?
 18 A. Well, you want to do those tests not in
 19 the water-bearing zone. So all those tests that
 20 you just saw there, they're right at the top of
 21 the water-bearing zone, so the samples tend to be
 22 saturated when you look at them and you look at
 23 the boring logs.
 24 Q. So let's talk next about the
 25 distribution of constituents in the groundwater.

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1 Can you explain to the panel what that constituent
 2 distribution shows?
 3 A. Yeah. I prepared this. I think I heard
 4 some testimony that -- somehow that this location
 5 was a continuing source after 80 years, and so I
 6 wanted to -- I wanted to have a blow-up of this
 7 area with a scale -- and I encourage everybody to
 8 look at the scale at the bottom.
 9 So you can see the concentrations. We
 10 plotted chloride, barium, and benzene, which is
 11 three of the constituents we've been talking a lot
 12 about.
 13 And when you look at that, we have two
 14 locations with benzene, but we have benzene
 15 completely delineated within 400 feet. And the
 16 chloride concentrations from 45,000 go down to
 17 less than 100 within 300 feet.
 18 So that tells you if there was a big
 19 ongoing continuous source that was pushing out
 20 chloride or benzene or whatever, you'd be
 21 generating a plume. You know, it's like a bulls
 22 eye, it keeps moving away. We don't see that.
 23 It's a very localized phenomenon from the residual
 24 of whatever happened back, you know, 80 years ago.
 25 Q. You also heard Mr. Miller characterize

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1 the blowout as being a bottom-up event; is that
 2 right?
 3 A. That's correct.
 4 Q. Do you agree with him or disagree?
 5 A. Well, we obviously -- we're of a
 6 disagreement here. We're relying on Mr. Richard
 7 Kennedy, and I won't, I think, read through each
 8 of these. I'd encourage you -- the panel to take
 9 a look at this.
 10 But our main evidence, these
 11 conductivity probe logs vertical perm data that we
 12 have and the geology. And then, you know, I think
 13 there's agreement on where the well actually blew
 14 out at the wellhead connection between both
 15 parties.
 16 So I'm not the petroleum engineer to say
 17 this, but based on the geology and the testing
 18 data, appears to us that it was more of a top-down
 19 phenomenon.
 20 Q. But the panel has Richard Kennedy's
 21 report, which is attached as, I believe, Chevron
 22 Exhibit 30; is that right?
 23 A. That's correct.
 24 Q. And Mr. Kennedy is a petroleum engineer
 25 who was retained by Chevron in the litigation, and

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1 he addressed the blowout, among other things; is
 2 that right?
 3 A. That's correct.
 4 Q. So what is the constituent of concern in
 5 the soil based on the testimony of ICON's
 6 witnesses, Mr. Miller and Mr. Sills?
 7 A. I think we're pretty much down to salt.
 8 We have an agreement. I think there's an
 9 agreement that no remediation needs to be done for
 10 barium, so we're talking about salt, is really all
 11 we're talking about.
 12 Q. Based upon your technical expertise,
 13 your application of 29-B and RECAP to the soil
 14 data set and on LDNR's prior approach on
 15 addressing salt-based constituents in the soil, is
 16 the Henning property, in your opinion, suitable
 17 for its reasonably intended use?
 18 A. Yes, it is.
 19 Q. However -- however you're aware of the
 20 judge's generalized ruling or its import to you in
 21 this case and so --
 22 A. I am.
 23 Q. You, that is ERM, produced its most
 24 feasible plan before the judge issued his ruling;
 25 is that right?

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1 A. Both parties did.
 2 Q. So if you -- if you have to compromise
 3 your technical expertise and your application of
 4 the applicable regulatory standards and arrive at
 5 some form of soil remediation that you could
 6 recommend to this panel, what would it be? And
 7 you testified about this as well last week.
 8 A. Yeah. The three locations as I pointed
 9 out last week where we have the 3-foot data. And
 10 I think we have agreement, we're going to -- we
 11 have a proposal to amend those. And the testimony
 12 I've heard now to date from ICON is they're only
 13 amending the upper 4 feet. Again, somewhat of an
 14 agreement, a little bit different depth, but we're
 15 not far off there.
 16 Q. So here we have a report of Mr. Luther
 17 Holloway in the Louisiana Wetlands case which was
 18 subject to -- is subject to litigation and a prior
 19 panel of LDNR addressed that property; is that
 20 right?
 21 A. That's correct.
 22 Q. And so why do you have this cover page
 23 of this particular report in this slide?
 24 A. Well, I heard a lot about sugarcane, and
 25 there's been an extensive evaluation of this

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1 property, which has been sugarcane production for
 2 decades, and it was determined that the root zone
 3 there was 10 1/2 inches. I actually read a
 4 farmer's deposition who farms there. His opinion
 5 was it was less than 2 feet. Dr. Holloway came to
 6 the conclusion that any remediation of this
 7 property would be 2 feet for sugarcane.
 8 Q. And sugarcane is sugarcane from a
 9 rooting depth standpoint, at least from what you
 10 understand, although you're not an agronomist or
 11 soil scientist; right?
 12 A. That's correct.
 13 Q. And you don't purport to be?
 14 A. I do not.
 15 Q. You mentioned the farmer. You may not
 16 have mentioned a farmer. You also reviewed a
 17 farmer's deposition -- sugarcane farmer's
 18 deposition in that case; is that right?
 19 A. Yes.
 20 Q. And what -- did he have anything to say
 21 about the rooting depth of sugarcane?
 22 A. Yeah. It's less than 2 feet, which is
 23 consistent with, you know, Dr. Holloway's
 24 position.
 25 MR. GREGOIRE: At this point, I'm going to

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1 offer Chevron 167, Mr. Holloway's report in
 2 the Louisiana Wetlands litigation. That's
 3 Exhibit 167.
 4 JUDGE PERRAULT: All right.
 5 Any objection to Exhibit 167?
 6 MR. CARMOUCHE: No objection.
 7 JUDGE PERRAULT: No objection? So ordered.
 8 Shall be admitted.
 9 BY MR. GREGOIRE:
 10 Q. So let's move to the next slide. Here,
 11 you have an aerial photograph with a blue-shaded
 12 area. Can you explain to the panel what this
 13 slide depicts?
 14 A. Yeah. I heard a lot of testimony about
 15 ponds, bass ponds, different types of ponds, and
 16 so we started looking at the reasonableness of,
 17 you know, if you put a pond in, let's just assume
 18 you put it at the H-16 location, which we've
 19 talked a lot about. It's the location that has
 20 salt in soil.
 21 You can see where the H-16 location is.
 22 It was selected to be right in the heart of a
 23 former tank battery that had been in operation for
 24 over 40 years. Keep that mind. This was first
 25 visible in a 1951 aerial. This is, I think, an

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1 '81 aerial, but you can look back in time and see
 2 it there.
 3 So what is also in this hypothetical
 4 pond is well locations that exist on the property,
 5 the three in red have been plugged and abandoned,
 6 and the one in yellow, which is right here, is a
 7 United World Energy well that's listed as future
 8 utility.
 9 So what those tell me is, in a
 10 hypothetical scenario like this, number one,
 11 you've got an active well you're going to have to
 12 deal with. Number two, the wells have been
 13 plugged and abandoned and they have been cut off
 14 below the ground surface at 4 to 10 feet, so
 15 you've got those to deal with.
 16 And then you've got some infrastructure
 17 there that was originally developed way back when
 18 when the property originally started oil field,
 19 and so you've got to keep all those things in mind
 20 on these hypothetical scenarios, I guess. Because
 21 obviously a well here that has future utility, you
 22 really don't want to build a pond there. It's
 23 probably not a good spot.
 24 Q. So you testified earlier, Mr. Angle,
 25 that ICON's plan, including his groundwater plan,

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1 is not the most feasible or most reasonable for
 2 protection of human health and the environment; is
 3 that right?
 4 A. That's correct.
 5 Q. And what are your reasons for that
 6 conclusion?
 7 A. I think number one is -- I think the
 8 panel heard they didn't rely on all data, they
 9 didn't rely on ERM's data. Their engineers, I
 10 listened to their testimony, they've never
 11 designed or implemented a similar plan for salt.
 12 They hadn't even been to the property as part of
 13 their, you know, I guess foot -- or homework to
 14 come up with a design.
 15 This pumping plan that's up to 12 years
 16 won't yield potable water when they're done -- or
 17 when they're done.
 18 And then, finally, the risks of the
 19 remedy have not been evaluated. And as you
 20 probably heard me say earlier, these type of plans
 21 have been rejected in the past by the panel as
 22 being excessive or -- and/or unreasonable.
 23 Q. Let's go back to the potability of the
 24 water, that analysis. So we have two different
 25 calculations for what constitutes background

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1 chlorides; right?
 2 A. Correct.
 3 Q. 687 milligrams per liter --
 4 A. Yes.
 5 Q. -- for ERM? And I think ICON's number
 6 was 428 milligrams per liter; is that right?
 7 A. That's correct.
 8 Q. Regardless of the number that you used,
 9 and your number was -- you arrived at your number
 10 appropriately. I know both numbers are above the
 11 secondary maximum contaminant level for chlorides;
 12 is that right?
 13 A. That's correct.
 14 Q. And so let's talk about some of the
 15 things that ICON did not consider in its plan.
 16 Talk about those.
 17 A. Yeah. Sure. I think there were some
 18 questions related about, you know, is this plan
 19 really feasible? I mean it's easy to put it
 20 together in a book, but you've got to ask yourself
 21 what it's going to do to be successful?
 22 Number one, is it going to draw an off-site
 23 groundwater?
 24 Yes. And I'll show you in a minute.
 25 It's going to pump a zone that can never

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1 serve as a USDW, can't meet the requirements. I
 2 think we talked a little bit about subsidence, you
 3 saw a map of the wells. That's an issue probably
 4 ought to be looked at.
 5 Induced infiltration. 471 wells is a
 6 lot of wells. You heard testimony, I think
 7 Mr. Miller said -- maybe it was Dr. Schuhmann.
 8 This property floods with Bayou Lacassine water at
 9 times. So as you're pumping these wells, you have
 10 to deal with flooding conditions. You turn them
 11 off, they draw surface water down into the shallow
 12 zone. It's an issue that hadn't really been
 13 looked at.
 14 I didn't hear much experience on the RO
 15 treatment system. I think that's probably all
 16 I'll say there.
 17 Effect of sulfate, iron, and manganese
 18 on RO membranes. If you haven't ever engineered
 19 one or run one of those, it's kind of hard to know
 20 what this particular water quality -- and I
 21 thought I heard testimony, is that that estimate
 22 from the RO vendor wasn't even for this property,
 23 it was another property, it was just applied to
 24 this property.
 25 We talked about that, Bayou Lacassine.

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1 And then finally, I think this came up
 2 too, this question about, you know, what do you do
 3 with all this water that comes from the RO system?
 4 Have you looked at, you know, permitting that?
 5 These are questions that, from a
 6 feasibility standpoint, you'd probably want
 7 answered before you start off on, you know,
 8 putting in 471 wells.
 9 Q. Did ICON even provide an analysis of its
 10 proposed saltwater disposal system that would
 11 inject water if the treatment and disposal were
 12 on-site as supposed to off-site?
 13 A. No. And they actually proposed two SWDs
 14 at \$3 million each, which is a large portion of
 15 their costs.
 16 Q. So you have here an aerial photograph of
 17 the property, and I'll let you explain to the
 18 panel what you want to convey here.
 19 A. Yeah. Just the scale of the -- of the
 20 ICON groundwater plan. So we superimposed a
 21 football field. Everybody knows a football field.
 22 But we also -- we needed something bigger, so we
 23 took the Superdome and we put it in there so you
 24 can kind of get a feel for the -- you know, you
 25 talk about 85 acres. What does it really look

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1 like?
 2 And two things to point out here.
 3 Number one, it's just the scale or the magnitude
 4 of each of the ICON remediation areas. I think
 5 Mr. Carter and Mr. Sills talked about Area I, it
 6 was 20-something acres.
 7 I'll point you here to two things. You
 8 know, they might even draw water in from off the
 9 property in two locations. So that's just to kind
 10 of get your arms around the size of this
 11 groundwater remediation area.
 12 Q. And here you have, of course, ICON's
 13 proposed 471 recovery wells, and so it looks like
 14 you analyzed the gallon per day pumping rate in
 15 two of the areas; is that right?
 16 A. Yes. This is just to show how variable
 17 the shallow water-bearing zone is on behalf of
 18 ICON's analysis.
 19 If you just look at Area I -- we'll
 20 focus on I and K again. You say they have 185
 21 wells in the A bed. They're only going to pump
 22 144 gallons per day each. Not very much water.
 23 That's a tenth of a gallon a minute. It would be
 24 a long time to fill up a 5-gallon bucket.
 25 Area K, one recovery in the B bed, 403

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1 gallons per day. If you add those together, you
 2 don't get 800, assuming that, you know, they're
 3 added -- you would add them together.
 4 But just to give you an idea of the low
 5 yield in some of these areas relative to the
 6 number of wells that have to be pumping.
 7 Q. So describe for the panel -- and they
 8 may already know -- what storativity is and how it
 9 relates to your analysis in ICON's proposed
 10 groundwater plan.
 11 A. Yeah. That's a factor. I'll spend like
 12 30 seconds here.
 13 It's a factor, too, of -- you know, when
 14 you look at the combined aquifer, the ability of
 15 the aquifer -- the yield of the aquifer. And so
 16 this is -- these equations that ICON used in the
 17 back of their appendix, they use these all the
 18 time.
 19 But in this one, they completely plugged
 20 in the wrong number for storativity. The RECAP
 21 range, there should be like three zeros in front
 22 of 0.15. That has an effect on these
 23 calculations, the number of wells, the yield and
 24 all of that. So I'd encourage you to look at
 25 that, but you have to look at the appendix to

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1 evaluate those.

2 Q. And so here you have additional reasons

3 why ICON's groundwater plan is neither the most

4 feasible nor the most reasonable; right?

5 A. Yes. This is -- that's basically --

6 these have to do with the RO system.

7 Q. And so explain to us your analysis in

8 this slide in connection with ICON's plan.

9 A. Yeah. Very quickly. They spec'd out

10 two RO systems. However, when you really dig deep

11 in the appendix of their plan, you find out that

12 they're going to be generating 90,000 gallons per

13 day. So they've got two units, but they've got a

14 whole lot more water they're going to have to deal

15 with, so that's the number one issue.

16 Number two issue, obviously they're

17 going to be generating 31 millions of gallons of

18 water from that system. That's got to go

19 somewhere on the property. That's about 68

20 gallons a minute.

21 We talked about discharge permitting

22 requirements. I didn't hear testimony on, you

23 know, that was even looked into.

24 And then finally, you know, obviously a

25 lot of truckloads if this water would be hauled

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1 off.

2 Q. Did you see any analysis of where the

3 water would be discharged on-site as ICON

4 proposes?

5 A. Not any detail analysis. I think there

6 was talk to discharge it to a surface water

7 drainage.

8 Q. And we're talking specifically about the

9 discharge of up to 31 millions gallons of water?

10 A. Yes.

11 Q. Did you see any environmental impact or

12 other similar analysis from ICON to show the

13 impact to the property, to Mr. Henning's property,

14 as a result of its surface discharge of up to

15 31 million gallons of water?

16 A. No, I didn't see any analysis of that.

17 Q. Did you see any analysis by ICON of

18 whether that discharge would impact any current or

19 reasonably anticipated future uses of the

20 property?

21 A. No.

22 Q. And just to sum up, again, for the

23 panel, there are available water sources at this

24 property?

25 A. Yeah. And I think the panel's seen this

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1 before. And I think that's a very important piece

2 to keep that in mind, we've got a Chicot water

3 source. We've got a public tested water source,

4 and then obviously the pump-on/pump-off system

5 that's currently in use for the agriculture on the

6 property.

7 Q. And so next, it's your opinion that the

8 ICON plan doesn't meet the Act 312 plan

9 requirements; is that right?

10 A. That's correct.

11 Q. And why?

12 A. Because their plan with exceptions, they

13 don't provide identification of an applicable rule

14 or regulation, let's say for like RECAP, that

15 their plan with exception's going to look to. I

16 think it's based on Mr. Miller's calculation of a

17 relationship between EC and soluble chloride.

18 Q. And it also doesn't include work

19 schedule; is that right?

20 A. Correct. I think the only way you can

21 find how long this plan's going to take is to look

22 at the Appendix -- and I forget the appendix

23 numbers. And you can find the number of years

24 they're going to pump the wells. And I think it

25 was teased out that it was going to be three years

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1 of drilling to put in all the wells, so...

2 But you've got to look in the appendix.

3 There's no presentation of actually a work

4 schedule.

5 Q. So here, you previously addressed

6 what -- sorry about that.

7 What an evaluation or remediation plan

8 entails under Chapter 6 of 29-B and what the

9 feasible plan is as being the most reasonable; is

10 that right?

11 A. Yeah. The key word there is reasonable.

12 And, you know, since -- I've been doing these

13 since the first one, Poppadoc. You've got to look

14 at reasonableness. And that's -- that would be

15 the most feasible plan is the most reasonable

16 plan.

17 Q. And so let's sum up Chevron's plan, and

18 first the plan for soil, which includes your

19 alternate remediation or blending plan; is that

20 right?

21 A. That's correct. And Chevron's soil

22 remediation and debris removal plan is laid out on

23 the slide to, you know, kind of summarized. The

24 first thing we talked about is NORM removal.

25 Barium soil delineation, that's a

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1 component. SPLP chloride. And then finally, the
 2 soil blending, those are the three locations shown
 3 on this slide, to a depth of 3 feet.
 4 And again, this is all dependent upon
 5 this whole, I guess, legal fight over what the
 6 judge's ruling means. But that's our soil plan.
 7 180 to 280, I think, was the number for the soil
 8 remediation plan.
 9 Q. So summarize your groundwater plan.
 10 A. Groundwater plan is basically our
 11 monitored natural attenuation for benzene as well
 12 as evaluating the stability of the groundwater
 13 within the Area 2.
 14 One additional monitoring well in the
 15 shallow zone up to the north to make sure that
 16 we're delineated, about 176,000.
 17 MR. GREGOIRE: Those are all the questions I
 18 have for you, Mr. Angle. Thank you.
 19 THE WITNESS: Thank you.
 20 JUDGE PERRAULT: You offered into evidence
 21 Exhibit 163.4. Any objection to 163.4?
 22 MR. CARMOUCHE: No, Your Honor.
 23 JUDGE PERRAULT: No objection? So ordered,
 24 it shall be admitted.
 25 MR. GREGOIRE: Yes. 167 for the wetlands

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1 lands vegetation report and 163.4 for the
 2 deck, yes.
 3 JUDGE PERRAULT: Right.
 4 MR. GREGOIRE: If I might make one
 5 correction, Judge. I didn't know that this
 6 vegetation report was previously marked.
 7 That, I did not realize.
 8 JUDGE PERRAULT: Which one is that?
 9 MR. GREGOIRE: So if we can just change that
 10 exhibit number from 167 to 158.4. And
 11 I'll --
 12 JUDGE PERRAULT: 167 is now 158.4?
 13 MR. GREGOIRE: Yes.
 14 Do you want this copy with that number
 15 on it?
 16 JUDGE PERRAULT: Yes. All right.
 17 CROSS-EXAMINATION
 18 BY MR. CARMOUCHE:
 19 Q. Good afternoon, Mr. Angle.
 20 A. Good afternoon, Mr. Carmouche.
 21 Q. Mr. Angle, after all the sampling was
 22 performed that you talked about, you understand
 23 that Chevron had to decide if they were going to
 24 admit that the soil and groundwater were
 25 contaminated. Do you know that?

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1 A. Yeah. I think Chevron -- that would
 2 have been a Chevron decision, not a Dave Angle
 3 decision.
 4 Q. Correct. And it's your understanding
 5 that Chevron drew areas and admitted in the --
 6 that area both soil and groundwater, didn't say
 7 zero to 2 feet, said all -- the soil in this area
 8 and the groundwater were contaminated?
 9 A. I'm not sure that's exactly what the
 10 limited admission said. I think it's part of it,
 11 is they're going evaluate the -- there's a word
 12 "potential" in there that you don't want to lose
 13 sight of.
 14 They have to do that to get into this
 15 process so we can present the panel with the data
 16 we used to determine what needs to be done from a
 17 remediation standpoint. So that's what I do from
 18 a scientist standpoint.
 19 Q. You read their limited admission;
 20 correct?
 21 A. I did.
 22 Q. Okay. And the judge also read their
 23 limited admission; correct?
 24 A. I assume so.
 25 Q. Okay. And you know -- because you

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1 talked about statutes, you know that you have to
 2 follow the rules of the statute that you talked
 3 about today?
 4 A. I wouldn't disagree with you.
 5 Q. I'm not going to show it again, but that
 6 rule says that you have to apply all the rules and
 7 court orders; correct?
 8 MR. GREGOIRE: Look, Your Honor, we've been
 9 through this on numerous occasions.
 10 Mr. Angle can testify about -- in answer to a
 11 question to the extent that it involves his
 12 technical expertise. But we don't want there
 13 to be any overlap of legal question versus
 14 technical expertise, which is where we're
 15 going once again.
 16 JUDGE PERRAULT: Sustained. Just stick to
 17 the facts and you present your legal argument
 18 to the panel based on what they said.
 19 MR. CARMOUCHE: I'm confused because the
 20 statute that requires the plan that he
 21 follows as a scientist --
 22 JUDGE PERRAULT: All right. Well, ask him
 23 what he did. Ask him what he did or what he
 24 didn't do.
 25 MR. CARMOUCHE: Okay. We'll go straight to

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<p>1 that.</p> <p>2 JUDGE PERRAULT: We just don't want him</p> <p>3 giving legal opinions. Just have him stick</p> <p>4 to the facts of what he did, what he</p> <p>5 measured.</p> <p>6 MR. CARMOUCHE: I think I get to question him</p> <p>7 about what he didn't do.</p> <p>8 JUDGE PERRAULT: You can ask that.</p> <p>9 BY MR. CARMOUCHE:</p> <p>10 Q. Okay. So if we go to the court's order,</p> <p>11 "As a result of Chevron's limited admission,</p> <p>12 Henning's property contains contamination and is</p> <p>13 not suitable for its intended use."</p> <p>14 Did I read that correctly?</p> <p>15 A. That's what -- this is the judge's</p> <p>16 ruling, I think; right?</p> <p>17 Q. Yes, sir.</p> <p>18 A. Okay. Yeah, that's what it says.</p> <p>19 Q. Do you know if your testimony -- I took</p> <p>20 your deposition; correct?</p> <p>21 A. Yes.</p> <p>22 Q. After your report was issued and after</p> <p>23 the feasible plan?</p> <p>24 A. Yes. And I think it was before this</p> <p>25 judge's ruling --</p>	<p>1 I just wanted to get across to the panel the scale</p> <p>2 of the problem we're dealing with. And just</p> <p>3 looking at the well locations and all of the</p> <p>4 engineering, it had nothing to do with the size.</p> <p>5 It's things that if I'm an engineer</p> <p>6 designing a plan like that, you've got to start</p> <p>7 looking at some of these things because it's not</p> <p>8 just prepare a report, turn it in, turn a crank,</p> <p>9 and it's going to happen over 85 acres.</p> <p>10 I'm not aware of any site in the state</p> <p>11 of Louisiana where something like this has been</p> <p>12 attempted. So obviously, I would -- if it was me,</p> <p>13 I'd be doing some looking hard to try to</p> <p>14 understand is this really going to do what it</p> <p>15 says -- or what the plan says it's going to.</p> <p>16 Q. And switching now to putting a well on</p> <p>17 the property. And you said it's too big to -- if</p> <p>18 you put one well or just looked at one well, to</p> <p>19 determine the classification. Do you remember</p> <p>20 that conversation?</p> <p>21 A. Yes, I do.</p> <p>22 Q. Do you know if RECAP assumes -- I know</p> <p>23 Mr. Miller went through a well, but do you know --</p> <p>24 or you agree that if it is a Class 3 like you're</p> <p>25 suggesting, that if there's a domestic or</p>
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<p>1 Q. Correct. Correct.</p> <p>2 A. -- I think.</p> <p>3 Q. Do you know if your testimony was given</p> <p>4 to the court prior to this ruling right here?</p> <p>5 A. That's a lawyer question. I don't know.</p> <p>6 Q. If you know or --</p> <p>7 A. Yeah, I do not know that.</p> <p>8 Q. Okay. That's fair.</p> <p>9 On the sugarcane depth, do you mind if</p> <p>10 this panel calls the LSU Ag department and find</p> <p>11 out the root zone of a sugarcane?</p> <p>12 A. No, I don't mind at all. I just present</p> <p>13 my experience with a site. That's all. No.</p> <p>14 Q. Do you mind if they call DEQ and ask</p> <p>15 them if they've ever dealt with an RO unit and if</p> <p>16 the water actually comes out as fresh drinkable</p> <p>17 water? Do you mind if they consult DEQ on that?</p> <p>18 A. No, no objection.</p> <p>19 Q. And you went through -- and I saw you</p> <p>20 had it was unreasonable because of the size of the</p> <p>21 plume. With that logic -- I mean, you would agree</p> <p>22 that if you took your logic, as long as a polluter</p> <p>23 pollutes enough groundwater in a state, then we</p> <p>24 don't have to clean it?</p> <p>25 A. No. I totally disagree with you there.</p>	<p>1 agricultural supply well put into that property</p> <p>2 anywhere, one well, that under RECAP, you have to</p> <p>3 classify it as a 2?</p> <p>4 A. Well, that scenario doesn't exist</p> <p>5 because there's no wells in that zone.</p> <p>6 Q. Okay. So if Mr. Henning goes next week</p> <p>7 and puts an agricultural supply well where it's</p> <p>8 producing 5,000 gallons per day, you're going to</p> <p>9 agree it's a Class 2?</p> <p>10 A. Well, we'll have to see that play out.</p> <p>11 But agricultural supply well, in this zone, I</p> <p>12 think it would be a waste of money, quite</p> <p>13 honestly, the amount of water you're going to need</p> <p>14 to fill up one of those rice fields. That's just</p> <p>15 not going to cut it from a yield standpoint;</p> <p>16 right?</p> <p>17 Q. It's his property; right?</p> <p>18 A. Correct, it's his property.</p> <p>19 Q. It's his money?</p> <p>20 A. Correct.</p> <p>21 Q. And if he gets a permit, then would you</p> <p>22 agree that it's a Class 2 aquifer?</p> <p>23 A. You'd have to put that well in, you'd</p> <p>24 have to go through a whole lot of steps to make</p> <p>25 that determination. That hadn't been done.</p>

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1 Q. So actually one well on a piece of
 2 property can turn the aquifer into a Class 2?
 3 A. Again, it's a hypothetical that may or
 4 may not happen, so...
 5 Q. I'm just asking. Isn't that what the
 6 definition says?
 7 A. If --
 8 Q. Even within a mile from this property.
 9 So if one well is put in within a mile of this
 10 property to supply a domestic well agriculture,
 11 you shall consider the aquifer as a Class 2?
 12 A. That's what it said. But as I went
 13 through with the panel, the variability in -- and
 14 the situation that you would get on a site like
 15 this if that actually occurred or if you put it in
 16 a spot where it didn't produce enough water. So
 17 we'd have a -- we'd have to resolve that. Let's
 18 put it that way.
 19 MR. CARMOUCHE: That's all the questions I
 20 have.
 21 MR. GREGOIRE: One follow-up.
 22 REDIRECT EXAMINATION
 23 BY MR. GREGOIRE:
 24 Q. Mr. Angle, you're a geologist and a
 25 hydrogeologist; is that right?

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1 A. Yes.
 2 Q. So, you know, you've explained this to
 3 the panel, but I just want to make sure that it's
 4 crystallized. When you review a site to determine
 5 the condition of the soil and groundwater, what --
 6 if you'd give a Reader's Digest version of what
 7 you do, tell us what you do in applying the
 8 science and regulations?
 9 A. Yeah. We basically look at the data
 10 from a desktop standpoint, published data, to data
 11 that we gather to arrive at our opinion for the
 12 need for additional remediation -- or additional
 13 investigation or remediation. It's not based on
 14 one work. It's based on data. And in this case,
 15 we've got over 600 soil points and 60-plus
 16 groundwater samples plus all of the backup that's
 17 in that big thick document you guys will get a
 18 chance to look at.
 19 Q. Have you applied those same principles
 20 in your evaluation of this property as you have
 21 provided on countless other oil field properties
 22 around the state Louisiana?
 23 A. Yes. No different. This is no
 24 different.
 25 MR. GREGOIRE: Thank you.

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1 JUDGE PERRAULT: Does the panel have any
 2 questions?
 3 PANELIST OLIVIER: Could we take a ten-minute
 4 break to discuss?
 5 JUDGE PERRAULT: All right. We'll take a
 6 ten-minute break.
 7 (Recess taken at 2:08 p.m. Back on record
 8 at 2:28 p.m.)
 9 JUDGE PERRAULT: It's February 13, 2023.
 10 It's now 2:28. We're back on the record.
 11 Does the panel have a question for this
 12 witness, Mr. Angle?
 13 PANELIST OLIVIER: Yes, one question. This
 14 is Stephen Olivier.
 15 We noticed that there was a cost
 16 included here for contingent debris removal,
 17 I think it's a NORM-contaminated pipe, and
 18 then I do remember reading the Chevron MFP
 19 where I think it might have stated something
 20 to the effect of, you know, Chevron may have
 21 recommended an RP be established and remove
 22 it, but I think Chevron was made willing to
 23 remove it if they were told they had to or if
 24 they were instructed to.
 25 And I guess my question is, just seeing

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1 a cost here -- and I think there might have
 2 been a cost provided before in the last
 3 presentation -- is Chevron voluntarily
 4 removing this debris or is Chevron of the
 5 option where they're providing a cost in case
 6 that an agency is requiring them to do it?
 7 THE WITNESS: Yeah. I think that NORM pipe
 8 was not located -- or is not located in a
 9 Chevron operational area. Obviously Chevron
 10 was gone in '84, so subsequent ops.
 11 I think the cost is presented if the
 12 panel felt that that's something that needed
 13 to be addressed. Then I think, you know, we
 14 put it in there as, I guess, Chevron's
 15 commitment to address it if it felt like it
 16 was attached to Chevron somehow.
 17 PANELIST OLIVIER: So just to be clear, it's
 18 not -- Chevron's not voluntarily just going
 19 out and saying, hey, I'm going remove this
 20 NORM debris. It's there in the event that an
 21 agency would come back and require Chevron to
 22 do it?
 23 THE WITNESS: Yeah. And I hate to answer for
 24 Chevron here, but we put it in there, I think
 25 there's a commitment to address it if it felt

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<p>1 like it needed to be addressed on behalf of 2 Chevron. 3 PANELIST OLIVIER: And from what I do 4 remember, I think y'all already did address 5 that it is outside of any AOIs for Chevron in 6 this limited admission? 7 THE WITNESS: That's correct. 8 PANELIST OLIVIER: Thank you. That's the 9 only clarification questions that the panel 10 has. 11 JUDGE PERRAULT: Thank you. 12 No one else has a question? 13 Mr. Gregoire? 14 MR. GREGOIRE: Thank you. Chevron has no 15 further rebuttal witnesses, Judge. 16 JUDGE PERRAULT: All right. Now it's time 17 for Henning's rebuttal; is that correct? 18 MR. CARMOUCHE: Yes. We're going to rely 19 upon what our experts have already testified 20 to in our cross-examinations. 21 JUDGE PERRAULT: That concludes y'all's 22 rebuttal? 23 MR. CARMOUCHE: Yes, sir. 24 JUDGE PERRAULT: All right. Well, is that 25 our case?</p>	<p>1 them, and then I'll ask the other side. 2 MR. KEATING: Okay. Next would be the slide 3 show that was presented on the 4 cross-examination of Angela Levert, which we 5 have marked with five A's. AAAAA. 6 JUDGE PERRAULT: Five As. 7 Okay. 8 (Document marked as Exhibit BBBBB for 9 identification.) 10 MR. KEATING: Next would be the cross of -- 11 PowerPoint used in the cross-examination of 12 David Angle, which would be five Bs. 13 JUDGE PERRAULT: Okay. 14 (Document marked as Exhibit CCCCC for 15 identification.) 16 MR. KEATING: Next would be the documents 17 used in the cross-examination of Patrick 18 Ritchie, which we have marked with five Cs. 19 JUDGE PERRAULT: Okay. 20 (Document marked as Exhibit DDDDD for 21 identification.) 22 MR. KEATING: Next would be the documents 23 used in the cross-examination of John 24 Frazier, which we have marked with five Ds, 25 as in dog.</p>
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<p>1 MR. GREGOIRE: Yes, Your Honor, I think that 2 concludes the cases. 3 JUDGE PERRAULT: Would y'all like a closing? 4 MR. KEATING: Yes, sir. 5 JUDGE PERRAULT: Under the rules of the 6 closing, Chevron as the last word, so we'll 7 have Henning go first. 8 MR. KEATING: Your Honor, may I ask one 9 point? 10 JUDGE PERRAULT: Yes. 11 MR. KEATING: We have a couple of 12 housekeeping items -- 13 JUDGE PERRAULT: Let's do that. 14 MR. KEATING: -- with respect to exhibits. I 15 don't know if you want those in before 16 closing or after. 17 JUDGE PERRAULT: Let's do that now. 18 Henning's exhibits. 19 MR. KEATING: We have the slide show from the 20 direct examination of Greg Miller, which is 21 identified -- or we'd ask to be identified 22 as -- it's going to say four ZZZZs, the 23 letter "Z," ZZZZ. 24 Offer, file, and introduce into record. 25 JUDGE PERRAULT: We'll go through all of</p>	<p>1 JUDGE PERRAULT: Five what? 2 MR. KEATING: Ds, as in dog. Five dogs. 3 JUDGE PERRAULT: Wait. What was the one just 4 before this for Patrick Ritchie? 5 MR. KEATING: Oh, the marked for 6 identification? 7 JUDGE PERRAULT: Yes. 8 MR. KEATING: Cs, as in cat. Five cats. 9 JUDGE PERRAULT: Okay. All right. Next 10 after five Ds? 11 (Document marked as Exhibit EEEEE for 12 identification.) 13 MR. KEATING: Documents used on the 14 cross-examination of John Kind, marked with 15 five Es. 16 JUDGE PERRAULT: Okay. 17 (Document marked as Exhibit FFFFF for 18 identification.) 19 MR. KEATING: And lastly, Your Honor, 20 documents used on the cross-examination of 21 Helen Connelly during Chevron's case in chief 22 marked with five Fs. 23 JUDGE PERRAULT: Is that it? 24 MR. KEATING: Yes, Your Honor. 25 JUDGE PERRAULT: Okay. Any objection to</p>

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Page 1602	<p>1 Exhibit ZZZZ, the slide show for Greg Miller?</p> <p>2 MR. GREGOIRE: Your Honor, I think we can</p> <p>3 probably streamline this. Chevron has no</p> <p>4 objection to the exhibits, but if Matt or</p> <p>5 someone would just follow up with showing us</p> <p>6 the actual documents so we make sure we're on</p> <p>7 the same page. And we'll reserve our rights</p> <p>8 subject to that.</p> <p>9 JUDGE PERRAULT: All right. Chevron has no</p> <p>10 objection to ZZZZ or the Exhibits labeled A,</p> <p>11 B, C, D, E, F, all -- A five, B five, C five,</p> <p>12 D five.</p> <p>13 MR. KEATING: And F.</p> <p>14 JUDGE PERRAULT: And F.</p> <p>15 I'm having trouble saying them.</p> <p>16 MR. KEATING: It's a lot, I agree.</p> <p>17 JUDGE PERRAULT: So seven exhibits offered by</p> <p>18 Henning have been admitted without objection.</p> <p>19 MR. KEATING: Thank you, Your Honor.</p> <p>20 JUDGE PERRAULT: Any other problems?</p> <p>21 MR. KEATING: No, no other exhibits.</p> <p>22 JUDGE PERRAULT: Does Chevron have any other</p> <p>23 housekeeping?</p> <p>24 All right. Well, now it's time for</p> <p>25 closing. Henning will go first in the close.</p>	Page 1604	<p>1 areas this big. They chose that. They chose</p> <p>2 to tell the Court "We contaminated those</p> <p>3 areas." Not just the soil. They could have</p> <p>4 just said "We contaminated the soil."</p> <p>5 They chose to say "We contaminated the</p> <p>6 soil and the groundwater." Their choice.</p> <p>7 So when they did that, and after taking</p> <p>8 their experts' depositions, I thought I would</p> <p>9 make your job easy because we can all read.</p> <p>10 It's not -- it's not complicated. When</p> <p>11 you say something's contaminated and then you</p> <p>12 go to the statute -- and I ask that you do</p> <p>13 because it's not -- it's not difficult. They</p> <p>14 admitted contamination. All we've got to do</p> <p>15 is read the definition: "Useable groundwater</p> <p>16 aquifer on underground source of drinking</p> <p>17 water." There's nowhere in this definition</p> <p>18 that says "unusable water." It doesn't say</p> <p>19 that. They chose to admit it, that it was a</p> <p>20 usable aquifer.</p> <p>21 They also chose to admit that the soil</p> <p>22 and groundwater are unsuitable for their</p> <p>23 intended purposes. That's the definition.</p> <p>24 So all we did is just, we went to the court</p> <p>25 and said, "Judge, they've admitted this.</p>
Page 1603	<p>1 MR. CARMOUCHE: Good afternoon.</p> <p>2 I won't be long.</p> <p>3 First, I want to thank you for having</p> <p>4 patience with us. I know you'd rather be</p> <p>5 somewhere else and not be with a bunch of</p> <p>6 lawyers. But unfortunately, we're forced to</p> <p>7 do this.</p> <p>8 You know, I thought back and when they</p> <p>9 showed the five cases where there were</p> <p>10 limited admissions before. And I told you</p> <p>11 that I never had one. And it's my</p> <p>12 understanding that some people have lost</p> <p>13 confidence and so the landowners just chose</p> <p>14 not to participate. It's sad. It's sad.</p> <p>15 And I said I'm going to refuse to</p> <p>16 believe that when someone makes an admission</p> <p>17 with a sworn statement from the company, that</p> <p>18 we can follow that. We didn't make them.</p> <p>19 You didn't make them. Apparently they didn't</p> <p>20 even rely upon their experts.</p> <p>21 But they chose in a court of law to file</p> <p>22 a document with the Court admitting in all of</p> <p>23 those areas. They can pick and choose soil,</p> <p>24 they could say that little circle was</p> <p>25 contaminated. They didn't have to draw the</p>	Page 1605	<p>1 We're asking you to declare and hold them to</p> <p>2 their admission." Rather than just come here</p> <p>3 and argue to you and say "They admitted this</p> <p>4 and read the definition," I went to the court</p> <p>5 because I saw Chapter 6.</p> <p>6 And Chapter 6 says that when we, them,</p> <p>7 or you create a plan, we all have to follow</p> <p>8 the rules and court orders.</p> <p>9 So our plan, their plan, and if you</p> <p>10 choose to do your own plan, you have to meet</p> <p>11 Chapter 6.</p> <p>12 And the judge couldn't have been any</p> <p>13 clearer. He says, "The plan" -- "the</p> <p>14 property is contaminated and not suitable for</p> <p>15 its intended use, so you have to remediate</p> <p>16 it." All of those areas, including the</p> <p>17 groundwater, because that's what they</p> <p>18 admitted.</p> <p>19 So we have a choice. Are we just going</p> <p>20 to ignore it and say do nothing? Are we</p> <p>21 going to ignore a drinking water -- a</p> <p>22 groundwater aquifer in our state that they</p> <p>23 themselves admitted is useable?</p> <p>24 I hope not. I think I've done my job</p> <p>25 for my client. I take it very seriously.</p>

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<p>1 And so I went to the Court. Now this is 2 going to fall in your hands. And I'm sure 3 someone's told you, if we or them don't agree 4 that you chose the most feasible plan, then 5 we get to go to the Court. 6 And I feel that, due to their admission 7 under oath, signing it with the court, we're 8 to hold them to that. Otherwise, what is it 9 for? What's the whole purpose of the 10 statute? If we're not going to follow the 11 rules of Louisiana, then I don't know what 12 else to do. 13 I mean we just want to have rules and 14 have commitments as lawyers, as experts, and 15 they're asking us to just throw it all way. 16 I mean, that was created by the legislature 17 for citizens of Louisiana to follow, for you 18 to follow. We can't ignore the rules in this 19 state anymore. 20 So I'm asking you, and I'm begging you, 21 don't make me go back to the judge. Let's 22 get it right here. This is where it should 23 be. This is where the decision should be 24 made, and the right decision. 25 Again, I want to thank you for your time</p>	<p>1 JUDGE PERRAULT: What's that? 2 MS. RENFROE: The one slide that hasn't been 3 presented before is the next-to-last slide, 4 which is Slide 10. 5 JUDGE PERRAULT: Slide 10. Let's look at 10. 6 All right. All the other slides have 7 already been presented by witnesses. I guess 8 we're just renumbering them -- 9 MS. RENFROE: That's correct. 10 JUDGE PERRAULT: -- in a new package? 11 MS. RENFROE: That's right. And, Your Honor, 12 Slide 4. But what is on Slide 4 has been 13 presented but not in the format of Slide 4. 14 JUDGE PERRAULT: All right. 15 MR. CARMOUCHE: So, Judge, I'm going to -- 16 well, first of all, I'm going to object to 17 any slides in a closing argument being 18 introduced as evidence. That's my first 19 objection. 20 If you're going to allow it for its 21 testimony, that's not evidence in a hearing. 22 If the panel wants to go back and read the 23 definition -- I mean testimony, they can. 24 And 10 is, again, something created by a 25 lawyer. That can't be introduced into</p>
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<p>1 and your patience. 2 JUDGE PERRAULT: Chevron. 3 MS. RENFROE: Thank you, Your Honor. 4 Your Honor, I do have, I think, maybe 5 the last deck of PowerPoint slides for my 6 closing that I'd like to hand out. 7 And I'll mark it and offer it as Chevron 8 Exhibit 163.5. 9 JUDGE PERRAULT: 163.5? 10 MR. CARMOUCHE: I'm going to object. Closing 11 argument is not evidence. You can't put 12 slides of a closing argument in evidence. 13 She's got to get it through a witness. 14 JUDGE PERRAULT: What -- what -- 15 MR. CARMOUCHE: I don't mind them seeing it. 16 JUDGE PERRAULT: Have you seen it? 17 MR. CARMOUCHE: No. 18 JUDGE PERRAULT: Look at it first. 19 Is this what's already been presented? 20 MS. RENFROE: No. This is what I'm about to 21 present, but everything in here has already 22 been presented. 23 JUDGE PERRAULT: That's what I'm asking. 24 Everything's been presented? 25 MS. RENFROE: Yes, sir. With one exception.</p>	<p>1 evidence without a witness. 2 JUDGE PERRAULT: Okay. Here's what we're 3 going to do. We're not going to allow 10 4 since that's -- I would have to swear you in. 5 MS. RENFROE: Understood. 6 JUDGE PERRAULT: All right. I'll allow the 7 rest because it's evidence that's already 8 been admitted, you're just using it as your 9 presentation. 10 She's going to have a slide show with 11 her closing, which is nothing illegal about 12 that. And so I'm going to allow all of it 13 except page 10. 14 So we're going to label this 163.5? 15 MS. RENFROE: Yes, Your Honor. 16 JUDGE PERRAULT: Exhibit 163.5. And I'll 17 allow it over the objection of counsel, since 18 all of the documents have been admitted -- 19 all of the information in here has been 20 admitted into evidence. This is just a new 21 format. And I'm sure the panel would love to 22 read things over and over again. 23 MS. RENFROE: May I hand copies to the panel? 24 JUDGE PERRAULT: Yes. 25 MR. KEATING: Do those have Slide 10 still in</p>

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<p>1 there?</p> <p>2 MS. RENFROE: Yes. And he's not --</p> <p>3 JUDGE PERRAULT: Oh, take Slide 10 out.</p> <p>4 MS. RENFROE: My understanding is that you've</p> <p>5 ruled I can show Slide 10 but it's not going</p> <p>6 into evidence?</p> <p>7 JUDGE PERRAULT: No, let's not show it</p> <p>8 because then it looks like evidence. And I'm</p> <p>9 going to have to swear you in if we're going</p> <p>10 to do Slide 10.</p> <p>11 MS. RENFROE: Well, Your Honor, it's simply</p> <p>12 demonstrative.</p> <p>13 JUDGE PERRAULT: Right. But let's not do</p> <p>14 that because it might -- we're demonstrating</p> <p>15 something that looks like evidence rather</p> <p>16 than just argument, and we're supposed to be</p> <p>17 doing argument right now.</p> <p>18 But I get you, you're not up to no good.</p> <p>19 But I don't want to confuse them.</p> <p>20 MS. RENFROE: Understood. And I don't</p> <p>21 either. I don't either.</p> <p>22 So may I take a minute and pull out</p> <p>23 Slide 10?</p> <p>24 JUDGE PERRAULT: Yes. Yes, you may. Take</p> <p>25 all the time you need.</p>	<p>1 the whole deposition is in evidence.</p> <p>2 JUDGE PERRAULT: So we don't know if this is</p> <p>3 in evidence?</p> <p>4 MR. CARMOUCHE: I think the trial</p> <p>5 testimony --</p> <p>6 JUDGE PERRAULT: Can y'all check and see if</p> <p>7 it's in evidence? Did he say this on the</p> <p>8 record or is it in the deposition?</p> <p>9 MS. RENFROE: He said it in the deposition</p> <p>10 for sure, and I asked him about it in the</p> <p>11 hearing. I asked him about the topic in the</p> <p>12 hearing. And what I'm trying to do is show</p> <p>13 that he completely contradicted himself in</p> <p>14 his deposition:</p> <p>15 MR. CARMOUCHE: She cross-examined him. I</p> <p>16 mean, the deposition's not in evidence and</p> <p>17 it's not even part of the hearing.</p> <p>18 JUDGE PERRAULT: If the deposition's not in</p> <p>19 evidence, we're not going to allow 4 either.</p> <p>20 MS. RENFROE: All right.</p> <p>21 JUDGE PERRAULT: Page 4.</p> <p>22 MR. KEATING: The panel still has 4, I</p> <p>23 believe.</p> <p>24 MS. RENFROE: I'm going to talk about it,</p> <p>25 though, because this is an issue I covered --</p>
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<p>1 MR. GREGOIRE: We maintain our objection as</p> <p>2 to Slide 10. It's clearly -- it's merely a</p> <p>3 demonstrative which the panel should not be</p> <p>4 precluded from viewing or using as</p> <p>5 reliance --</p> <p>6 JUDGE PERRAULT: You're objection's noted on</p> <p>7 the record. And once they're gone, if either</p> <p>8 side wants to proffer, we can do that.</p> <p>9 MS. RENFROE: Thank you, Your Honor.</p> <p>10 JUDGE PERRAULT: And I can sit in for the</p> <p>11 proffer because I'm not making any decisions.</p> <p>12 MS. RENFROE: I've removed Slide 10.</p> <p>13 May I hand these to the panel?</p> <p>14 JUDGE PERRAULT: Yes.</p> <p>15 MR. CARMOUCHE: The only question I have,</p> <p>16 Judge, regarding Slide 4, since you're</p> <p>17 letting it in, it has trial and depo</p> <p>18 testimony. And I don't --</p> <p>19 JUDGE PERRAULT: Is this dep- --</p> <p>20 MR. CARMOUCHE: Maybe the depo- --</p> <p>21 JUDGE PERRAULT: Counsel said the deposition</p> <p>22 is in evidence.</p> <p>23 MR. CARMOUCHE: The whole deposition's in</p> <p>24 evidence?</p> <p>25 MS. RENFROE: I'm not sure. I'm not sure if</p>	<p>1 JUDGE PERRAULT: Well, you can talk about</p> <p>2 what happened in the hearing.</p> <p>3 MS. RENFROE: Okay. Thank you.</p> <p>4 Let me take these back. Cleanse them of</p> <p>5 Slide 4.</p> <p>6 JUDGE PERRAULT: We don't want to introduce</p> <p>7 new evidence at the closing.</p> <p>8 MS. RENFROE: Well, respectfully, I don't</p> <p>9 think this is new evidence, but I'm prepared</p> <p>10 to move on. Let's just move on.</p> <p>11 JUDGE PERRAULT: Okay.</p> <p>12 Just so it's clear for the record,</p> <p>13 pages 4 and 10 have been excised from this</p> <p>14 exhibit, 163.5. And 163.5 will be admitted</p> <p>15 over the objection of Henning for the rest of</p> <p>16 it.</p> <p>17 (Document marked as Exhibit 163.5 for</p> <p>18 identification.)</p> <p>19 MS. RENFROE: Thank you. May I proceed?</p> <p>20 JUDGE PERRAULT: Yes, you may.</p> <p>21 MS. RENFROE: Thank you.</p> <p>22 Good afternoon, members of the panel,</p> <p>23 Your Honor. On behalf of Chevron USA and our</p> <p>24 team, we want to thank you very much for your</p> <p>25 patience over the last six days and for</p>

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<p>1 hearing Chevron's presentation of its most 2 feasible plan.</p> <p>3 As the Court stated, we're now closing, 4 wrapping up our case. And typically, a 5 closing is done in a jury trial to help 6 educate or argue to the jury how they should 7 evaluate the evidence and decide the case.</p> <p>8 Obviously in a situation like this where 9 a panel is comprised of technical experts, 10 you don't need to hear lawyer argument about 11 it. And, in fact, I suspect that you might 12 wish that you were able to hear from the 13 technical experts perhaps without the 14 lawyers. But this is the procedure that we 15 have to follow under Act 312; so you've had 16 the benefit of hearing at least from us at 17 times over the last six days. And I 18 appreciate you hearing from me one last time 19 on behalf of Chevron.</p> <p>20 So why am I taking additional time of 21 yours to present a closing? It's my hope 22 that a closing here this afternoon will allow 23 us to further clarify Chevron's technical 24 position in light of what has been or what 25 may have seemed like conflicting positions,</p>	<p>1 form of SAR and ESP. It's salts in shallow 2 groundwater that has never been used in the 3 past and, based on the evidence, is not 4 currently being used and, in fact, is not 5 ever going to be used in the future due to 6 its low yield and naturally poor quality.</p> <p>7 And it's about salts in soil at depths 8 that have no effect on the current or future 9 use of the property.</p> <p>10 That's going to be the roadway map for 11 my comments. So let me start with 12 groundwater. Turning to that, groundwater on 13 the property, as you heard from Mr. Angle 14 both today and over the last week is, in 15 fact, Class 3 due to its low yield. And 16 active remediation of the groundwater, that 17 shallow groundwater, simply is not needed.</p> <p>18 In truth, Henning and Chevron actually 19 agree on a number of things. So several 20 things are not at issue. As you heard from 21 Mr. Angle again today, the shallow 22 groundwater is, in fact, a single aquifer.</p> <p>23 There are sufficient slug tests with 24 which to characterize that aquifer, and, as 25 Mr. Angle explained, in characterizing the</p>
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<p>1 conflicting evidence presented by both 2 parties, and it's my hope to help clarify why 3 Chevron's technical position is actually 4 very, very consistent with the -- with prior 5 most feasible plans issued by the DNR.</p> <p>6 You have heard about two most feasible 7 plans, Chevron's and Henning's. You've heard 8 multiple witnesses with various levels of 9 qualification and experts. And certainly 10 you've heard and been presented with a lot of 11 evidence.</p> <p>12 But the truth is, when you strip it down 13 and filter it down to the data, there really 14 is not that much conflict in the evidence. 15 And I think it will allow you to come to a 16 clear technical finding.</p> <p>17 So with that preface, let me address a 18 few of these points. As we've heard today 19 and over the last week, this case is about 20 salts. It's not about human health. It's 21 not about ecological health. It's not about 22 barium. It's not about benzene. It's not 23 about arsenic. It's about salts.</p> <p>24 And in most places at the site, at the 25 property, those salts are present just in the</p>	<p>1 aquifer, it is important to analyze multiple 2 slug tests and all available data.</p> <p>3 Chevron and even Dr. Schuhmann also 4 agree that it's inappropriate to characterize 5 the groundwater beneath the property based on 6 just a single well. Mr. Angle identified 7 that for you and why that's problematic. But 8 unfortunately, that's what ICON has presented 9 to you.</p> <p>10 A next point that we think is very 11 important is that you've heard a refrain, 12 even today -- but last week in particular, 13 you've heard a refrain from Henning's lawyers 14 and Henning's witnesses that further 15 evaluation of the site is needed and that 16 various things need further analysis or 17 further evaluation.</p> <p>18 One example is -- that we heard is the 19 Henning request for a pump test. But 20 respectfully, members of the panel, that's 21 not needed for the reasons that Mr. Angle 22 explained to you today as well as last week. 23 It's simply not an effective way to 24 characterize the shallow groundwater at a 25 site as large and diverse as this one.</p>

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<p>1 And with 17 wells with slug tests, there</p> <p>2 is, in fact, sufficient data to calculate the</p> <p>3 groundwater yield of the shallow groundwater.</p> <p>4 And again, invoking Mr. Angle's</p> <p>5 testimony to you, because of the variability</p> <p>6 in that shallow groundwater footprint, a pump</p> <p>7 test is just not going to give you the answer</p> <p>8 that Mr. Henning's team has suggested about</p> <p>9 what the characterization -- the proper</p> <p>10 characterization of the shallow groundwater</p> <p>11 should be.</p> <p>12 Another suggestion that you heard from</p> <p>13 the Henning team or the Henning side is more</p> <p>14 study is needed for the protection of the</p> <p>15 Chicot Aquifer.</p> <p>16 Well, members of the panel, Chevron has</p> <p>17 done that additional study over the course of</p> <p>18 its preparation -- investigation of the site</p> <p>19 and the data that it's included in its most</p> <p>20 feasible plan.</p> <p>21 With respect to Dr. Schuhmann, in this</p> <p>22 hearing, he said on the one hand, he had no</p> <p>23 opinion about the Chicot but on the other</p> <p>24 hand, he suggested there was some connection</p> <p>25 between the Chicot Aquifer and the shallow</p>	<p>1 Aquifer. So no need to do any further</p> <p>2 analysis to check on the Chicot. It's not</p> <p>3 threatened by any of the constituents at the</p> <p>4 site.</p> <p>5 So what does the evidence show, members</p> <p>6 of the panel?</p> <p>7 Well...</p> <p>8 I got ahead of myself.</p> <p>9 So the groundwater beneath the property</p> <p>10 is Class 3, it just doesn't yield the</p> <p>11 800-gallon-per-day threshold to characterize</p> <p>12 it as anything else.</p> <p>13 And I just want to invoke for you again</p> <p>14 the analysis that Mr. Angle presented to you</p> <p>15 demonstrating how that yield -- how he</p> <p>16 analyzed the yield to demonstrate that it was</p> <p>17 less than 800 gallons per day.</p> <p>18 There's not enough -- not enough yield</p> <p>19 from that shallow aquifer to classify it as a</p> <p>20 Class 2, which is why he's concluded it as a</p> <p>21 Class 3. And you heard from witnesses today,</p> <p>22 not enough yield from that shallow aquifer</p> <p>23 even to fill a bass pond or to fill a</p> <p>24 crawfish pond, as Dr. Connelly explained, or</p> <p>25 to really do much of anything else.</p>
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<p>1 groundwater, and yet in the deposition that I</p> <p>2 took of him, I asked that very question. And</p> <p>3 in the deposition, under oath, he admitted he</p> <p>4 had no opinions about the Chicot Aquifer but</p> <p>5 said he thought it was divorced from the</p> <p>6 shallow groundwater.</p> <p>7 So the truth is and the evidence that's</p> <p>8 been presented shows no connection between</p> <p>9 the shallow groundwater and the Chicot. And</p> <p>10 unfortunately, Mr. Miller presented a map to</p> <p>11 you, a diagram that purported to show some</p> <p>12 connection but which he couldn't support with</p> <p>13 any actual data to show any kind of</p> <p>14 connection between the shallow groundwater</p> <p>15 and the Chicot.</p> <p>16 In contrast to what Mr. Miller couldn't</p> <p>17 demonstrate to you, Mr. Angle actually did</p> <p>18 present multiple lines of evidence that</p> <p>19 showed no connectivity between the shallow</p> <p>20 groundwater and the Chicot, citing the clay</p> <p>21 layer and the lack of data showing any impact</p> <p>22 to the Chicot.</p> <p>23 And then you heard from Ms. Levert,</p> <p>24 based on her RECAP evaluation of groundwater</p> <p>25 protection, no risk of leaching to the Chicot</p>	<p>1 So the groundwater beneath the property</p> <p>2 is -- doesn't yield enough and significantly,</p> <p>3 it is of naturally poor quality. You heard</p> <p>4 the discussion about that from Ms. -- from</p> <p>5 Dr. Connelly as well as Mr. Angle.</p> <p>6 So then the groundwater, from Chevron's</p> <p>7 perspective and based on the evidence that's</p> <p>8 been presented in its most feasible plan and</p> <p>9 in this hearing, doesn't need to be</p> <p>10 remediated for any human health reason or any</p> <p>11 ecological reason. That's the testimony of</p> <p>12 Ms. Levert, Dr. Kind, and Dr. Connelly.</p> <p>13 And while we say that the groundwater</p> <p>14 doesn't need to be remediated, for those</p> <p>15 reasons, Ms. Levert has demonstrated through</p> <p>16 her quantitative risk evaluation under RECAP</p> <p>17 that the groundwater does not need to be</p> <p>18 remediated.</p> <p>19 If, however, this panel concludes, given</p> <p>20 the agency's prior concerns with benzene in</p> <p>21 groundwater, that something should be done,</p> <p>22 Chevron, in its most feasible plan, has</p> <p>23 proposed monitored natural attenuation to</p> <p>24 address the benzene in groundwater using a</p> <p>25 proven technology that the agency has</p>

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<p>1 accepted before at East White Lake, as an 2 example. And Chevron stands ready to deploy 3 an active remediation, such as in-situ 4 treatment, if it is shown that the benzene 5 does not attenuate through monitoring -- or 6 through monitored natural attenuation. 7 Now moving to soil. As we have 8 demonstrated over the last week and 9 reinforced today in our rebuttal case, the 10 soil does not require remediation either. 11 And there are some points that Henning 12 and Chevron agree upon. Henning and Chevron 13 agree that remediation of barium in soils is 14 not needed. And there's no plan by Henning 15 that's been presented to remediate barium in 16 soils. Likewise, both Henning and Chevron 17 agree there's no need to remediate arsenic in 18 soils, and Henning has no plan to do so. 19 Neither does Chevron. 20 Next, with respect to whether an 21 exception to 29-B is appropriate, both 22 Chevron and Henning agree that at this site, 23 exceptions to 29-B are appropriate. 24 However, there are some differences in 25 the two parties' positions. Mr. Sills, whom</p>	<p>1 further evaluation is needed. Respectfully 2 not so. Here's why. 3 Well, we heard them say we need to 4 further evaluate barium in soil for human 5 health reasons even though they've not 6 presented any plan to remediate barium. 7 And the reason further evaluation of 8 barium in soil is not needed for human health 9 reasons include, among other things, 10 Dr. Kind's testimony. He's the only 11 toxicologist who's testified in this hearing. 12 And he testified about his human health risk 13 assessment and dose analysis and dose 14 calculation and explained to you today why a 15 pica ingestion analysis was not warranted at 16 this site. 17 You heard again from Ms. Levert today on 18 her RECAP MO-2 evaluation of barium showing 19 no human health risk with respect to current 20 use or potential future use of the property 21 even for residential purposes. 22 Further analysis of barium in soil, 23 members of the panel, for protection of 24 wildlife. There was a suggestion by the 25 Henning folks that that should be done. But</p>
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<p>1 you heard from on Friday, was very clear that 2 ICON is not recommending in its 29 -- it's 3 not recommending its 29-B plan, rather it's 4 recommending its exceptions plan, its 5 exceptions to 29-B. 6 Henning's plan and Chevron's plan both 7 seek exceptions to 29-B, as I said, but the 8 difference is Chevron is the only party that 9 followed the rules to justify an exception to 10 29-B by applying a RECAP evaluation. Henning 11 did not do that. 12 So while we've heard Mr. Carmouche over 13 the last week implore this panel to follow 14 the rules, we too agree and we hope the panel 15 will follow the rules, in doing so, 16 recognize, however, that Henning has not at 17 all followed the rules for an exception to 18 29-B while Chevron has. 19 Now, in that respect, Chevron is the 20 only party that provided a RECAP evaluation 21 that would provide the justification for an 22 exception to 29-B. 23 Again on soil, we heard from various 24 witnesses presented -- or called by Henning 25 and counsel for Henning Management that</p>	<p>1 in fact, that has already been done. That 2 was done by Dr. Connelly. 3 We heard some suggestion from Mr. Sills 4 on Friday, who was called by Henning, that he 5 had obtained a protective concentration level 6 for mallards from Texas -- from a gentleman 7 in Texas. 8 But he didn't offer that as a 9 remediation level; rather, I believe his 10 testimony is we simply needed to look further 11 to see whether barium in soil might be 12 presenting any kind of future risk or current 13 risk to mallards. 14 But again, Chevron has already done that 15 work. It's done that analysis. And on this 16 Slide 8, I remind you of something that 17 Dr. Connelly showed you just this morning, 18 which is an evaluation of whether the barium 19 in the soils present any risk to the 20 mallards. And she explained to you, with her 21 quantitative ecological risk assessment, that 22 there's no risk to wildlife, including 23 mallards, from barium in the soil. 24 Then we heard about sugarcane. And we 25 heard from the Henning witnesses that the</p>

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<p>1 property should be further evaluated to see 2 if it could support sugarcane and if any of 3 the constituents in soils might interfere 4 with that. 5 You heard today from Mr. Angle referring 6 to the LA Wetlands sugarcane analysis that, 7 in fact, that work has already been done and 8 presented to DNR in another case. 9 So you have within your files and 10 information we've presented today the 11 analysis to demonstrate the effective root 12 zone depths for sugarcane, and there's no 13 evidence that's been presented that barium 14 presents any risk or that chlorides present 15 any risk to sugarcane. 16 So putting those suggestions for further 17 analysis aside because they've all been 18 answered, where does the evidence -- what 19 does the evidence show and where does it 20 leave us now? 21 Soils on the property are safe for human 22 health, including any type of residential 23 use. Even Henning does not propose soil 24 remediation to protect human health. And 25 soils on the property are safe for ecological</p>	<p>1 So in contrast to Henning's -- to what 2 has been presented by Mr. Angle and Chevron 3 as part of its most feasible plan, in 4 contrast to this very targeted, very discrete 5 amendments which are not required by the 6 applicable rules but certainly could be 7 required by this panel if it thought it was 8 appropriate. In contrast to this, what we 9 see from Henning's most -- proposed most 10 feasible plan to address salts is rather 11 infeasible, impractical, and not reasonable 12 and certainly not necessary. Doesn't meet 13 the test for a reasonable plan under 3029. 14 I move now to my last point. And that 15 is that -- uses of the property. So while 16 I'm not showing you something that I prepared 17 that summarized the testimony, I want to just 18 talk you to about it. 19 We've heard over the last week and even 20 again today so many different hypothetical 21 uses of this property. Might be used as a 22 solar farm, might be used for agriculture. 23 It's being used for agriculture today but 24 might be used for sugarcane in the future or 25 something else. Might be used for a bass</p>
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<p>1 health, as Dr. Connelly demonstrated. So 2 that brings us back to salts. 3 Salts in the property are not limiting 4 the use of the property either today or in 5 the future to grow crops. And that was the 6 testimony of Mr. Ritchie last week. 7 So then despite the evidence, the 8 technical evidence in the site data from 9 multiple lines of evidence that show that 10 salts in the property present no human health 11 risk and no ecological risk and are not 12 interfering with the ability to grow crops on 13 the property, despite that overwhelming 14 evidence, if remediation is required by the 15 panel to comply with Judge Cain's ruling on 16 Chevron's limited admission, then Chevron has 17 identified amendments in three locations as 18 what would be the most reasonable remedy, 19 although it would not even be required by 20 29-B. 21 And on this Slide 9, I'm just showing 22 you a summary of what Mr. Angle presented 23 with respect to what those amendments would 24 look like, what they would cost, and where 25 they would be.</p>	<p>1 pond. Might be used for a hunting lodge. 2 Might be used for crawfish farming or 3 crawfish pond. Could be used for residential 4 purposes, even a residential subdivision. 5 Stormwater pond and so on. 6 Chevron is in no way trying to tell 7 Mr. Henning what to do with this property. 8 It's his property. He can do with it what he 9 wants to do. 10 The point that we wish to make, however, 11 through the evidence that we've presented is 12 that none of the oil field constituents on 13 this property are interfering with his 14 current use of it in any way whatsoever and 15 no evidence has been presented to you of 16 that. 17 Likewise, the evidence that we have 18 presented through our witnesses has 19 demonstrated that, from a human health 20 perspective and an ecological health 21 perspective, the presence of oil field 22 constituents in the form of barium and salts 23 on this property are not going to threaten or 24 limit in any way whatsoever the future uses 25 of the property, including any of those that</p>

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<p>1 I mentioned.</p> <p>2 And that analysis is based on both the</p> <p>3 groundwater data, the soil data, human health</p> <p>4 risk evaluations performed under RECAP,</p> <p>5 ecological risk evaluation performed under</p> <p>6 RECAP and pursuant to US EPA guidance, and</p> <p>7 root zone analysis, as was presented to you.</p> <p>8 So the potential future uses of the</p> <p>9 property varied, and hypothetical as they</p> <p>10 might be, they're not prohibited or prevented</p> <p>11 by the constituents in soils or groundwater</p> <p>12 at the property.</p> <p>13 When Mr. Henning was in here last week</p> <p>14 talking to you about how he might use this</p> <p>15 property in the future. He was asked what</p> <p>16 his future plans were. You probably remember</p> <p>17 what he said. Might put a house on it, might</p> <p>18 want to put a hunting lodge on it, might do a</p> <p>19 bass pond, and so on.</p> <p>20 But notably, he didn't mention anything</p> <p>21 about using the shallow groundwater, though</p> <p>22 if he wished to, there's no evidence in this</p> <p>23 record that it would present any human health</p> <p>24 risk or ecological risk.</p> <p>25 Residential use. Chevron performed a</p>	<p>1 pursue that.</p> <p>2 With respect to the idea that somebody</p> <p>3 on the property might eat bass or crawfish</p> <p>4 that might be grown at some point in the</p> <p>5 future on the property, again, that was</p> <p>6 addressed by Dr. Connelly.</p> <p>7 So the truth is, ladies and gentlemen,</p> <p>8 the biggest limitation on the idea of putting</p> <p>9 a bass pond or a crawfish pond on this</p> <p>10 property is not the soil or groundwater or</p> <p>11 the constituents in them. Rather, it's the</p> <p>12 numerous boreholes from the oil wells that</p> <p>13 were made throughout the property because of</p> <p>14 landowner's choices to use the property for</p> <p>15 oil and gas over the last 80 years.</p> <p>16 But again, it is Mr. Henning's property.</p> <p>17 If he wants to construct a bass pond or a</p> <p>18 crawfish pond, he can do that. Oil field</p> <p>19 constituents are not preventing him from</p> <p>20 doing so.</p> <p>21 So in conclusion, I offer this. Judge</p> <p>22 Cain has -- Judge Cain has required this</p> <p>23 panel to develop a most feasible plan. It</p> <p>24 calls for remediation. But he's left it in</p> <p>25 your hands, the hands of the DNR, to</p>
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<p>1 residential RECAP analysis, as you heard</p> <p>2 again today from Ms. Levert. It was a</p> <p>3 full -- also a full toxicological human</p> <p>4 health analysis. And you heard both Dr. Kind</p> <p>5 and Ms. Levert explain why a pica analysis</p> <p>6 was simply not warranted here. No</p> <p>7 limitations on the use of this property for</p> <p>8 residential purposes in the future.</p> <p>9 Cattle-watering, another idea that we</p> <p>10 heard this week. Again, I want to remind you</p> <p>11 of the testimony you heard today from</p> <p>12 Dr. Connelly and Mr. Angle why</p> <p>13 cattle-watering from the shallow groundwater</p> <p>14 is not being prevented by the presence of oil</p> <p>15 field constituents.</p> <p>16 Crawfish. Again, Chevron did that</p> <p>17 analysis. Shallow groundwater doesn't yield</p> <p>18 enough to support a crawfish pond. But even</p> <p>19 if it did, there's nothing in the soils that</p> <p>20 would prevent or threaten crawfish farming.</p> <p>21 Same thing with a bass pond. We did</p> <p>22 that analysis. Shallow groundwater doesn't</p> <p>23 yield enough, and there's nothing at the site</p> <p>24 that would interfere with use of the property</p> <p>25 as a bass pond, should Mr. Henning choose to</p>	<p>1 determine what remediation is required, if</p> <p>2 any, and where.</p> <p>3 Judge Cain simply requires a most</p> <p>4 feasible plan. Well, as I'm showing you on</p> <p>5 this slide, a most feasible plan must be</p> <p>6 reasonable. That's part of the definition of</p> <p>7 it. And it has to apply, quote, relevant and</p> <p>8 applicable standards. That means Act 312,</p> <p>9 RECAP, and 29-B.</p> <p>10 Chevron's plan for the reasons that we</p> <p>11 have presented is the most reasonable because</p> <p>12 this case is about salts. That's the only</p> <p>13 thing the Henning plan proposes to address.</p> <p>14 It's undisputed that the salts on the</p> <p>15 property are not interfering with any current</p> <p>16 use and have not caused any ecological</p> <p>17 adverse effect.</p> <p>18 And Dr. Connelly's testimony to that</p> <p>19 point is completely undisputed. No</p> <p>20 ecological- -- no ecotoxicologist was called</p> <p>21 by Henning to controvert Dr. Connelly's</p> <p>22 testimony that no oil field constituent on</p> <p>23 the property in soil or groundwater is</p> <p>24 causing any adverse ecological effect.</p> <p>25 And Chevron's experts testified as well</p>

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Page 1634	<p>1 about those potential future uses that we</p> <p>2 talked about. And again, none of those are</p> <p>3 being prevented or will be prevented.</p> <p>4 So if the panel concludes that</p> <p>5 remediation is needed, as I have shown you,</p> <p>6 Chevron has offered a proposal for monitored</p> <p>7 natural attenuation on benzene in the ground</p> <p>8 water and amendments at three locations of</p> <p>9 the soil.</p> <p>10 In contrast, Henning is proposing</p> <p>11 disturbing 35,000 tons of soil for salts --</p> <p>12 to address salts.</p> <p>13 So as I said earlier, Chevron is</p> <p>14 proposing monitored natural attenuation to</p> <p>15 address benzene in groundwater to the extent</p> <p>16 this panel concludes that is needed.</p> <p>17 And I simply remind the panel</p> <p>18 respectfully about -- that the DNR has</p> <p>19 rejected in prior cases the pump-and-treat</p> <p>20 concept that Mr. Miller has proposed for this</p> <p>21 case in favor of monitored natural</p> <p>22 attenuation remedies. And I point you back</p> <p>23 to your decision in East White Lake.</p> <p>24 So while Henning is proposing a</p> <p>25 multimillion-dollar pump-and-treatment</p>	Page 1636	<p>1 include a RECAP evaluation or a justification</p> <p>2 for an exception for 29-B, it doesn't follow</p> <p>3 and is not based upon the applicable</p> <p>4 standards and regulations.</p> <p>5 So respectfully, members of the panel,</p> <p>6 adopting Chevron's most feasible plan would</p> <p>7 both comply with Judge Cain's order requiring</p> <p>8 remediation -- or regarding remediation and</p> <p>9 the requirement of Act 312 that DNR employ</p> <p>10 its technical and scientific expertise.</p> <p>11 And with that, we appreciate your</p> <p>12 patience.</p> <p>13 JUDGE PERRAULT: Thank you.</p> <p>14 Just for the record, I have 54 exhibits</p> <p>15 from Chevron and 28 exhibits from Henning.</p> <p>16 And are the parties available for</p> <p>17 tomorrow for 10:30 in this room to make sure</p> <p>18 we get your exhibit packages correct for the</p> <p>19 panel and for the Court?</p> <p>20 MR. GREGOIRE: Yes, Chevron is.</p> <p>21 JUDGE PERRAULT: Chevron is?</p> <p>22 Is Henning available at 10:30 tomorrow</p> <p>23 in this room to make sure we get your exhibit</p> <p>24 package together?</p> <p>25 I just need, you know, one person and</p>
Page 1635	<p>1 program -- 471 wells, 12 years, over</p> <p>2 31 million gallons of water that would have</p> <p>3 to be discharged -- it's a plan and it's a</p> <p>4 remedy that the DNR has never accepted to our</p> <p>5 knowledge.</p> <p>6 Chevron's plan, on the other hand,</p> <p>7 applies the relevant and applicable standards</p> <p>8 under RECAP and 29-B and to justify an</p> <p>9 exception to 29-B.</p> <p>10 So every most feasible plan issued by</p> <p>11 DNR in the past that we are aware of has</p> <p>12 applied RECAP as the basis for an exception</p> <p>13 to 29-B.</p> <p>14 RECAP is the only regulation in the</p> <p>15 state that enables the evaluation of human</p> <p>16 health risk and ecological risk. It's the</p> <p>17 tool that Chevron used but Henning did not.</p> <p>18 So we say, for those reasons, Chevron's</p> <p>19 most feasible plan is the only one that</p> <p>20 actually complies with and applies the</p> <p>21 relevant and applicable standards and</p> <p>22 regulations. And for the reasons I've</p> <p>23 explained, it is the only one that is</p> <p>24 reasonable.</p> <p>25 So because the Henning plan does not</p>	Page 1637	<p>1 I --</p> <p>2 MR. WIMBERLEY: I can do it.</p> <p>3 JUDGE PERRAULT: At 10:30 tomorrow?</p> <p>4 All right. And, Mr. Rice, can you do it</p> <p>5 for DNR?</p> <p>6 MR. RICE: Yes.</p> <p>7 JUDGE PERRAULT: So we'll meet here at 10:30</p> <p>8 tomorrow to make sure we get the packets</p> <p>9 right. And then Mr. Rice is going to give</p> <p>10 you y'all's exhibits when we get it straight.</p> <p>11 And y'all want the flash drives?</p> <p>12 And we'll give you one copy, one paper</p> <p>13 copy. And then I'll need the flash drives</p> <p>14 and one paper copy for the report.</p> <p>15 Is there anything else?</p> <p>16 MR. KEATING: I do have one point, Your</p> <p>17 Honor. There's been a lot of talk, argument,</p> <p>18 questions about the order from Judge Cain</p> <p>19 that's at issue or has been at issue.</p> <p>20 And we were limited -- I'm not rehashing</p> <p>21 the argument -- limited in it our questioning</p> <p>22 of their witnesses as it pertains to the</p> <p>23 order.</p> <p>24 I just want to make sure that the panel</p> <p>25 has been made aware of the requirements of</p>

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<p>1 Section 611 of Chapter 6. 2 MS. RENFROE: Your Honor, excuse me. Pardon 3 me, Mr. Keating. But this is another -- this 4 is another essentially argument to the panel 5 that -- and they've closed, so I would object 6 to any further commentary from Mr. Keating to 7 the panel. 8 JUDGE PERRAULT: If you have something for 9 me, I can do it. But if you're going to make 10 more closing to the panel, we've already done 11 that. 12 MR. KEATING: I'm not asking for that, Your 13 Honor. I'm asking that you, as the judge 14 presiding over this Act 312 hearing, -- 15 MS. RENFROE: Well, then let me just -- 16 pardon me. Again, pardon the interruption, 17 but I would ask the panel to be -- step out. 18 JUDGE PERRAULT: All right. We'll do that. 19 MR. KEATING: I'm asking if you're going to 20 make an instruction to the panel. That's all 21 I'm asking. I'm not going to argue what I 22 think it should be. That's -- 23 JUDGE PERRAULT: The instruction is what the 24 judge wrote. I'm not going to do any extra 25 instruction. I'm here just to referee this.</p>	<p>1 for your expertise and your patience. 2 And the panel, I thank y'all for your 3 patience, and I hope we gave you everything 4 you need to make an informed decision. 5 And with that, if there's nothing 6 further, this hearing is adjourned. 7 (Hearing adjourned at 3:22 p.m.) 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25</p>
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<p>1 I'm not in charge of them. The judge is in 2 charge of them. And they're going to follow 3 the law and whatever the judge wrote. 4 MR. KEATING: So it's left to them to 5 interpret the order for themselves? 6 JUDGE PERRAULT: Yes. I'm not getting 7 involved with them. I'm not giving them any 8 information. They haven't asked for any, 9 which is smart on their part. So I'm just 10 doing this. And they're going to be on their 11 own. I'm treating them like a jury, and I'm 12 not giving them any information other than 13 process and procedure. I'm staying out of 14 their business. And that's good for 15 everybody. Okay? 16 MR. KEATING: Fair enough. Just wanted to 17 put it on the record. Thank you. 18 JUDGE PERRAULT: Okay. That's fine. 19 Any other housekeeping or questions or 20 worries? 21 All right. Well, listen, I want to 22 thank all of the attorneys. Thank you for 23 your professionalism, your kindness, 24 expertise, and your patience. 25 Ms. Vaughan, you're the best. Thank you</p>	<p>1 REPORTER'S PAGE 2 I, DIXIE VAUGHAN, Certified Court 3 Reporter in and for the State of Louisiana, (CCR 4 #28009), as defined in Rule 28 of the Federal 5 Rules of Civil Procedure and/or Article 1434(B) of 6 the Louisiana Code of Civil Procedure, do hereby 7 state on the Record: 8 That due to the interaction in the 9 spontaneous discourse of this proceeding, dashes 10 (--) have been used to indicate pauses, changes in 11 thought, and/or talkovers; that same is the proper 12 method for a Court Reporter's transcription of 13 proceeding, and that the dashes (--) do not 14 indicate that words or phrases have been left out 15 of this transcript; 16 That any spelling of words and/or names 17 which could not be verified through reference 18 material have been denoted with the phrase 19 "(phonetic)"; 20 That (sic) denotes when a witness stated 21 word(s) that appears odd or erroneous to show that 22 the word is quoted exactly as it stands. 23 24 DIXIE VAUGHAN, CCR 25</p>

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1 REPORTER'S CERTIFICATE

2 I, Dixie Vaughan, Certified Court
3 Reporter (Certificate #28009) in and for the State
4 of Louisiana, as the officer before whom this
5 testimony was taken, do hereby certify that on
6 Monday, February 13, 2023, in the above-entitled
7 and numbered cause, the PROCEEDINGS, after having
8 been duly sworn by me upon authority of R.S.
9 37:2554, did testify as hereinbefore set forth in
10 the foregoing 256 pages;

11
12 That this testimony was reported by me
13 in stenographic shorthand, was prepared and
14 transcribed by me or under my personal direction
15 and supervision, and is a true and correct
16 transcript to the best of my ability and
17 understanding;

18
19 That the transcript has been prepared in
20 compliance with transcript format guidelines
21 required by statute or by rules of the board;

22
23 That I have acted in compliance with the
24 prohibition on contractual relationships, as
25 defined by Louisiana Code of Civil Procedure

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1 Article 1434 and in rules and advisory opinions of
2 the board;

3
4 That I am not of Counsel, nor related to
5 any person participating in this cause, and am in
6 no way interested in the outcome of this event.

7
8 SIGNED THIS THE 3RD DAY OF MARCH, 2023.

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12 DIXIE VAUGHAN
13 Certified Court Reporter (LA)
14 Certified LiveNote Reporter
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